

(08/26/22)

## Opening Ceremony

Monday: 8:30am-8:45am - Ballroom 104

# MONDAY ORAL PRESENTATIONS

## PLN 1: Plenary 1

Monday, August 15, 2022

8:45am - 9:30am

Ballroom 104 PLENARY (1120)

Session Chair: V. Ara Apkarian

8:45am - 9:30am

### Multiplexed and Sensitive Bioanalysis using SERS and SESORS

Karen Faulds<sup>1</sup>, Duncan Graham<sup>1</sup>, Hayleigh Kearns<sup>1</sup>, Anastasia Kapara<sup>1</sup>, Roy Goodacre<sup>2</sup>, Fay Nicolson<sup>1</sup>

<sup>1</sup>University of Strathclyde, United Kingdom; <sup>2</sup>University of Liverpool

## BIO-1: Biology and Biomedicine 1

Monday, August 15, 2022

10:00am - 11:50am

101B (207)

Session Chair: **Marcus T Cicerone**

10:00am - 10:20am

### Raman spectroscopy for on-site medical diagnosis and therapy

Juergen Popp<sup>1,2</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology, Germany; <sup>2</sup>Friedrich-Schiller University, Institute of Physical Chemistry and Abbe School of Photonics, Germany

10:20am - 10:35am

### Label-free characterization of rare-cell populations by high-throughput Raman flow cytometry

Kotaro Hiramatsu<sup>1,2</sup>, Matthew Lindley<sup>1</sup>, Koji Yamada<sup>3</sup>, Kengo Suzuki<sup>3</sup>, Keisuke Goda<sup>1,4,5</sup>

<sup>1</sup>The University of Tokyo, Japan; <sup>2</sup>Japan Science and Technology Agency, Japan; <sup>3</sup>euglena Co., Ltd., Japan; <sup>4</sup>Department of Bioengineering, University of California, USA; <sup>5</sup>Institute of Technological Sciences, China

10:35am - 10:50am

### Looking for significance of lipid droplets in vascular inflammation

Marta Zofia Pacia<sup>1</sup>, Natalia Chorazy<sup>1</sup>, Magdalena Sternak<sup>1</sup>, Stefan Chlopicki<sup>1,2</sup>

<sup>1</sup>Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, 14 Bobrzynskiego Str., 30-348 Krakow, Poland; <sup>2</sup>Chair of Pharmacology, Jagiellonian University, 16 Grzegorzeczka Str., 31-531 Krakow, Poland

10:50am - 11:05am

### Stratification of saliva of healthy, habitués and oral cancer subjects using Raman and FTIR spectroscopic approaches.

Arti Hole<sup>1</sup>, Nikita Maheswari<sup>1</sup>, Atul Deshmukh<sup>2</sup>, ViKram Gota<sup>1</sup>, Pankaj Chaturvedi<sup>3</sup>, Murali Krishna Chilakapati<sup>1</sup>

<sup>1</sup>TMC-ACTREC, India; <sup>2</sup>Center for Interdisciplinary Research, DY Patil University, Navi Mumbai India; <sup>3</sup>Tata Memorial Hospital, Parel India

11:05am - 11:20am

### The Impact of Nanoparticle on Early Developing Mammalian Embryos Evaluated using Raman Spectroscopy (Prerecorded talk)

Micahella Sarmiento<sup>1</sup>, Alexander Krivoharchenko<sup>2</sup>, Susanna Manuel<sup>1,3</sup>, Artashes Karmenyan<sup>1</sup>, Elena Perevedentseva<sup>1,4</sup>, Victor Natochenko<sup>2</sup>, Yin-Jeh Tzeng<sup>5</sup>, Shih-Che Hung<sup>5</sup>, Hsin-Hou Chang<sup>5</sup>, C.-H. Lee<sup>3</sup>, Chia-Liang Cheng<sup>1</sup>

<sup>1</sup>Department of Physics, National Dong Hwa University, Taiwan; <sup>2</sup>Semenov Institute of Chemical Physics, Russian Academy of Science, Moscow, Russian; <sup>3</sup>Department of Life Science, National Dong Hwa University, Taiwan; <sup>4</sup>Lebedev Institute of Physics, Russian Academy of Science, Moscow Russia; <sup>5</sup>Department of Molecular Biology and Human Genetics, Tzu Chi University, Taiwan

11:20am - 11:35am

### SERS-detection of osteogenic differentiation in stem cells cultured on simple gold nanoisland substrates

Adrianna Milewska<sup>1,2,3</sup>, Olafur E. Sigurjonsson<sup>2,4</sup>, Kristjan Leosson<sup>1</sup>

<sup>1</sup>Innovation Center Iceland, Reykjavik, Iceland; <sup>2</sup>The Blood bank, Landspítali University Hospital, Reykjavik, Iceland; <sup>3</sup>University of Iceland, School of Engineering and Natural Sciences, Reykjavik, Iceland; <sup>4</sup>Reykjavik University, School of Science and Engineering, Reykjavik, Iceland

11:35am - 11:50am

### In vivo monitoring tissue development in bone scaffolds using Raman spectroscopy

Anders Runge Walther<sup>1</sup>, Nicholas Ditzel<sup>2</sup>, Moustapha Kassem<sup>2</sup>, Morten Østergaard Andersen<sup>1</sup>, Martin Aage Barsøe Hedegaard<sup>1</sup>

<sup>1</sup>SDU Biotechnology, Department of Green Technology, University of Southern Denmark, Campusvej 55, 5230 Odense M, DK; <sup>2</sup>Endocrine Research (KMEB), Department of Endocrinology, Odense University Hospital and University of Southern Denmark, J.B. Winslows Vej 25, 5000 Odense C, DK

## MAT-1: Materials 1

Monday, August 15, 2022

10:00am - 11:50am

102B (156)

Session Chair: **Ado Jorio**

10:00am - 10:20am

### High Pressure Raman study of Novel Carbon Materials

Bingbing LIU

Jilin University, China, People's Republic of

(08/26/22)

10:20am - 10:35am

**Optical tweezing combined with confocal Raman microscopy detects the metastable amorphous intermediate responsible for laser-induced nucleation**

**Zhiyu Liao, Klaas Wynne**

University of Glasgow, United Kingdom;

10:35am - 10:50am

**Resonant Raman Scattering “Suppressed” in MoS<sub>2</sub> Fullerenes: A high Pressure and Low Temperature Study**

**Tsachi Livneh<sup>1</sup>, Eran Sterer<sup>1</sup>, Rita Rosentsveig<sup>2</sup>**

<sup>1</sup>NRCN, Israel; <sup>2</sup>Weizmann Institute of Science, Israel

10:50am - 11:05am

**High-pressure Raman spectra of L,L-dileucine crystals**

**Paulo Tarso Cavalcante Freire<sup>1</sup>, Cristiano Balbino Silva<sup>1</sup>, Gardenia Sousa Pinheiro<sup>2</sup>, José Gadelha Silva Filho<sup>3</sup>, Francisco Ferreira Sousa<sup>4</sup>, Alexandre Magno Rodrigues Teixeira<sup>5</sup>**

<sup>1</sup>Universidade Federal do Ceará, Brazil; <sup>2</sup>Universidade Federal do Piauí, Brazil; <sup>3</sup>Universidade Federal do Maranhão, Brazil; <sup>4</sup>Universidade Federal do Pará, Brazil; <sup>5</sup>Universidade Estadual do Cariri, Brazil

11:05am - 11:20am

**Raman Enhancement of Copper Phthalocyanine by Twisted Bilayer Graphenes Promoted by Excited State Charge Transfer**

**Sang-Yong Ju**

Yonsei University, Korea, Republic of (South Korea)

11:20am – 11:35am

**Monitoring the Unusual Deformation and Fracture in Nanoindented Gallium Telluride Multilayers Via Micro-Raman Spectroscopy**

**Yan Zhou<sup>1,2</sup>, Dong Liu<sup>1</sup>, Shi Zhou<sup>3</sup>, Yong Xie<sup>4</sup>, Mingming Gong<sup>5</sup>, Tao Wang<sup>5</sup>, Ping-Heng Tan<sup>2</sup>, Martin Kuball<sup>1</sup>**

<sup>1</sup>Center for Device Thermography and Reliability (CDTR), H. H. Wills Physics Laboratory, University of Bristol, Tyndall Avenue, Bristol BS8 1TL, United Kingdom.; <sup>2</sup>State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China.; <sup>3</sup>University of Science and Technology of China, Hefei, 230026, P. R. China.; <sup>4</sup>State Key Discipline Laboratory of Wide Band Gap Semiconductor Technology, School of Advanced Materials and Nanotechnology, Xidian University, Xi'an, 710071, P. R. China.; <sup>5</sup>State Key Laboratory of Solidification Processing, School of Materials and Engineering, Northwestern Polytechnical University, Xi'an, 710072, P. R. China.

11:35am – 11:50am

**Electrospun Membrane doped with Gold Nanorods for Surface-enhanced Raman Spectroscopy**

**Ziwei Wang<sup>1</sup>, Andrea Lucotti<sup>1</sup>, Luigi Brambilla<sup>1</sup>, Matteo Tommasini<sup>1</sup>, Chiara Bertarelli<sup>1,2</sup>**

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>Center for Nano Science and Technology @PoliMi, Istituto Italiano di Tecnologia, Italy

## NEWT-1: New Techniques 1

Monday, August 15, 2022

10:00am - 11:50am

102A (156)

Session Chair: **Ewan William Blanch**

10:00am - 10:20am

**High-speed multicolor stimulated Raman microscopy**  
**Yasuyuki Ozeki**

The University of Tokyo, Japan

10:20am - 10:35am

**Human brain meningioma detection using handheld VRR analyzer**

**Liang Zhang<sup>1</sup>, Yan Zhou<sup>2</sup>, Shengjia Zhang<sup>3</sup>, Binlin Wu<sup>4</sup>, Ke Zhu<sup>5</sup>, Cheng-hui Liu<sup>6</sup>, Robert R. Alfano<sup>6</sup>, Xingang Yu<sup>1</sup>**

<sup>1</sup>The Department of Neurosurgery, PLA General Hospital, Beijing, 100039, China.; <sup>2</sup>The Department of Neurosurgery, Air Force Medical Center, PLA, Beijing, 100142, China.; <sup>3</sup>JRME Co., Ltd, Taizhou, Jiangsu, 225300, China.; <sup>4</sup>Physics Department and CSCU Center for Nanotechnology, CSC, New Haven, CT 06515, USA; <sup>5</sup>Institute of Physics, Chinese Academy of Sciences (CAS), PO Box 603, Beijing, 100190, China.; <sup>6</sup>Institute for Ultrafast Spectroscopy and Lasers, Department of Physics, CCNY of CUNY, New York, NY 10031, USA

10:35am - 10:50am

**Drop Coating Deposition Raman Spectroscopy as a Valuable Tool for Sensitive Detection of Biologically Important Molecules**

**Eva Kočíšová, Alžbeta Kůžžová, Mikuláš Příkryl, Marek Procházka, Anna Kuzminova, Ondřej Kylián**

Charles University, Faculty of Mathematics and Physics, Czech Republic

10:50am - 11:05am

**Non invasive depth determination of target in Ex vivo animal tissues using deep Raman Spectroscopy**

**Sara Mosca<sup>1</sup>, Priyanka Dey<sup>2</sup>, Tanveer A. Tabish<sup>2</sup>, Francesca Palombo<sup>2</sup>, Nick Stone<sup>2</sup>, Pavel Matousek<sup>1</sup>**

<sup>1</sup>Central Laser Facility, STFC, UKRI, UK; <sup>2</sup>School of Physics, University of Exeter, UK

11:05am - 11:20am

**On-Chip Raman Spectroscopy for the Characterisation of Oral Biofilms**

**Aileen Delaney<sup>1</sup>, Deirdre Devine<sup>2</sup>, David Head<sup>3</sup>, Jonathan Vernon<sup>2</sup>, Stephen Evans<sup>1</sup>**

<sup>1</sup>School of Physics and Astronomy, University of Leeds, UK; <sup>2</sup>Division of Oral Biology, School of Dentistry, University of Leeds, UK; <sup>3</sup>School of Computing, University of Leeds, UK

11:20am – 11:40am

**Compact Fiber Lasers for Coherent Raman Scattering Microscopy and Spectroscopy**

**Khanh Kieu**

University of Arizona, United States of America

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## NLTR-1: Non-linear and Time Resolved 1

Monday, August 15, 2022  
10:00am - 11:50am  
103A (144)

Session Chair: **Paul Morris Champion**

**10:00am - 10:30am**

**Vibrational Spectroscopic Imaging to Unveil Hidden Signatures in Living Systems**

**Ji-Xin Ph.D.**

USA, United States of America

**10:30am - 10:50am**

**Tracking Structural Evolutions during Charge Separation Processes with Time-Resolved Impulsive Stimulated Raman Spectroscopy**

**Dongho Kim**

Yonsei University, Korea, Republic of (South Korea)

**10:50am - 11:05am**

**Interfacial self-assembly and water interactions of model bacterial ice nucleators probed by vibrational sum-frequency generation (SFG)**

**Fani Madzharova<sup>1</sup>, Mikkel Bregnhøj<sup>1</sup>, Adam Chatterley<sup>1</sup>, Taner Drace<sup>2</sup>, Lasse Sander Andersen Dreyer<sup>2</sup>, Thomas Boesen<sup>2</sup>, Tobias Weidner<sup>1</sup>**

<sup>1</sup>Department of Chemistry, Aarhus University, Denmark; <sup>2</sup>Department of Molecular Biology and Genetics, Aarhus University, Denmark

**11:05am - 11:20am**

**Direct measurement of mode specific second order nonlinear susceptibility of collagen using vibrational sum frequency imaging**

**Khokan Roy<sup>1</sup>, Yryx Yanet Luna Palacios<sup>2</sup>, Israel Rocha Mendoza<sup>3</sup>, Eric Potma<sup>4</sup>**

<sup>1</sup>University of California Irvine, United States of America; <sup>2</sup>CICESE, Carretera Ensenada-Tijuana, Ensenada, Mexico; <sup>3</sup>CICESE, Carretera Ensenada-Tijuana, Ensenada, Mexico; <sup>4</sup>University of California Irvine, United States of America

**11:20am - 11:35am**

**Analysis of Microplastics in Consumer Goods via Femtosecond Stimulated Raman Microscopy**

**Carolin Borbeck, Francisco van Riel Neto, Peter Gilch**  
Heinrich Heine University Duesseldorf, Germany

## SERS-1: Sers/Ters 1

Monday, August 15, 2022  
10:00am - 11:50am  
101A (207)

Session Chair: **Karen Faulds**

**10:00am - 10:20am**

**Controlling Plasmonic Nanogap Chemistry to Tune Analyte Interactions**

**Hong Wei<sup>1,2</sup>, Chloe Groome<sup>1,2</sup>, Héctor Pascual Herrero<sup>1,2</sup>, William J. Thrift<sup>1</sup>, Yixin Huang<sup>1</sup>, Allon I. Hochbaum<sup>1,2</sup>, Regina Ragan<sup>1,2</sup>**

<sup>1</sup>Department of Materials Science and Engineering, University California, Irvine, Irvine, California 92697, USA; <sup>2</sup>Center for Complex and Active Materials, University California, Irvine, Irvine, California 92697, USA

**10:20am - 10:35am**

**Chemically stable surface bound thiolate intermediates in surface enhanced Raman spectroscopy**

**Xiaobin Yao<sup>1,2</sup>, Tanja Deckert-Gaudig<sup>1,2</sup>, Volker Deckert<sup>1,2</sup>, Christiane Höppener<sup>1</sup>**

<sup>1</sup>Leibniz Institute of Photonic Technology, Germany; <sup>2</sup>Friedrich Schiller University Jena, Institute of Physical Chemistry and Abbe Center of Photonics, Germany

**10:35am - 10:50am**

**Surface-enhanced Raman spectroscopic study of nanoparticle catalysis**

**Wei Xie**

Nankai University, China, People's Republic of

**10:50am - 11:05am**

**Surface-enhanced hyper Raman scattering elucidates adsorption and plasmon-assisted dimer formation of aromatic thiols**

**Janina Kneipp, Fani Madzharova, Zhiyang Zhang, Zsuzsanna Heiner**

Humboldt-Universität zu Berlin, Germany

**11:05am - 11:20am**

**Analyte Co-localization at Electromagnetic Gap Hotspots for Highly Sensitive, Plasmon-Enhanced Spectroscopic Detection of Biomolecular Analytes**  
**Rishabh Rastogi<sup>1,2</sup>, Pierre-Michel Adam<sup>2</sup>, Sivashankar Krishnamoorthy<sup>1</sup>**

<sup>1</sup>Luxembourg Institute of Science and Technology, Luxembourg; <sup>2</sup>University of Technology of Troyes, France

**11:20am - 11:35am**

**Waveguide-Coupled Plasmon Resonance for SERS**

**Shuping Xu, Yu Tian, Hailong Wang, Weiqing Xu**

State Key Laboratory of Supramolecular Structure and Materials, Institute of Theoretical Chemistry, College of Chemistry, Jilin University

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## PLN 2: Plenary 2

Monday, August 15, 2022  
1:45pm - 2:30pm  
Ballroom 104 PLENARY (1120)  
Session Chair: **Judy Kim**

1:45pm - 2:30pm

### Low-wavenumber Raman spectroscopy in multilayer graphene and related van der Waals heterostructures

**Ping-Heng Tan**

Institute of Semiconductors, Chinese Academy of Sciences, China, People's Republic of

## BIO-2: Biology and Biomedicine 2

Monday, August 15, 2022  
2:40pm - 4:00pm  
101B (207)  
Session Chair: **Juergen Popp**

2:40pm - 3:00pm

### TWO NEW APPROACHES TO BROADBAND STIMULATED RAMAN SCATTERING MICROSCOPY

**Alejandro De la Cadena**<sup>1</sup>, **Andrea Ragni**<sup>2</sup>, **Giuseppe Sciortino**<sup>2</sup>, **Federico Vernuccio**<sup>1</sup>, **Carlo M. Valensise**<sup>1</sup>, **Marco Sampietro**<sup>2</sup>, **Giorgio Ferrari**<sup>2</sup>, **Giulio Cerullo**<sup>1</sup>, **Dario Polli**<sup>1</sup>

<sup>1</sup>Physics department, Politecnico di Milano; <sup>2</sup>Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano

3:00pm - 3:15pm

### Decreasing volume, Increasing Impact: A History of Stimulated Raman Scattering Imaging

**Richard Prince**<sup>1</sup>, **Eric Potma**<sup>2</sup>

<sup>1</sup>East Tennessee State University, United States of America; <sup>2</sup>University of California, Irvine, United States of America

3:15pm - 3:30pm

### Raman spectroscopy in monitoring of adipogenesis and carotenoid delivery to adipocytes

**Krzysztof Czamara**<sup>1</sup>, **Ewa Stanek**<sup>1</sup>, **Joanna Janus**<sup>1,2</sup>, **Aleksandra Kolodziejczyk**<sup>2</sup>, **Aleksandra Orlef**<sup>2</sup>, **Marta Z. Pacia**<sup>1</sup>, **Aleksandra Wajda**<sup>2</sup>, **Agnieszka Kaczor**<sup>1,2</sup>

<sup>1</sup>Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, Krakow, Poland; <sup>2</sup>Faculty of Chemistry, Jagiellonian University, Krakow, Poland

3:30pm - 3:45pm

### Understanding the Mechanism of Formation of Protein Fibrils for Preventing Neurodegenerative Disease

**Anthony Dahdah**, **Ewan Blanch**, **Nilamuni Hiranya De Silva**, **Subashani Maniam**

Rmit, Australia

3:45pm - 4:00pm

### Surface Enhanced Resonance Raman spectro-electrochemistry of DyP type peroxidases

**Smilja Todorovic**

ITQB-NOVA Universidade Nova de Lisboa, Portugal

## MAT-2: Materials 2

Monday, August 15, 2022  
2:40pm - 4:00pm  
102B (156)  
Session Chair: **Klaas Wynne**

2:40pm - 3:10pm

### Phonons engineering and phonon transport in low dimensional systems

**Marta De Luca**<sup>1</sup>, **Claudia Fasolato**<sup>2</sup>, **Milo Y. Swinkels**<sup>1</sup>, **Iliaria Zardo**<sup>1</sup>

<sup>1</sup>University of Basel, Switzerland; <sup>2</sup>Università degli Studi di Perugia, Italy

3:10pm - 3:25pm

### Ultranarrow lines in Raman spectra of quantum wells due to effective acoustic phonon selection by in-plane wave vector

**Alexey Koudinov**<sup>2</sup>, **E.V. Borisov**<sup>3</sup>, **A.A. Shimko**<sup>3</sup>, **Yu.E. Kitaev**<sup>2</sup>, **C. Trallero-Giner**<sup>4</sup>, **T. Wojtowicz**<sup>5</sup>, **G. Karczewski**<sup>5</sup>, **Serguei Goupalov**<sup>1,2</sup>

<sup>1</sup>Jackson State University, United States of America; <sup>2</sup>Ioffe Institute, Russia; <sup>3</sup>Saint-Petersburg State University, Russia; <sup>4</sup>Havana University, Cuba; <sup>5</sup>Institute of Physics, Polish Academy of Sciences, Poland

3:25pm - 3:40pm

### Resonance Raman Scattering Study of Edge Phonons and Defects in Molybdenum Disulfide

**Rafael Nunes Gontijo**<sup>1,2,3</sup>, **Andreij Gadelha**<sup>2</sup>, **Orlando J. Silveira**<sup>2</sup>, **Tianyi Zhang**<sup>3</sup>, **Kazunori Fujisawa**<sup>3,4</sup>, **Ricardo W. Nunes**<sup>2</sup>, **Ana Laura Elias**<sup>1</sup>, **Marcos A. Pimenta**<sup>2</sup>, **Ariete Righi**<sup>2</sup>, **Mauricio Terrones**<sup>3</sup>, **Cristiano Fantini**<sup>2</sup>

<sup>1</sup>Binghamton University, United States of America; <sup>2</sup>Universidade Federal de Minas Gerais, Brazil; <sup>3</sup>The Pennsylvania State University, United States of America; <sup>4</sup>Shinshu University, Japan

3:40pm - 3:55pm

### Janus Monolayer-Induced Abnormal Interlayer Coupling in 2D Heterostructures

**Shengxi Huang**<sup>1</sup>, **Kunyan Zhang**<sup>1</sup>, **Yunfan Guo**<sup>2</sup>, **Jing Kong**<sup>2</sup>

<sup>1</sup>The Pennsylvania State University, United States of America; <sup>2</sup>Massachusetts Institute of Technology, United States of America

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## NEWT-2: New Techniques 2

Monday, August 15, 2022  
2:40pm - 4:00pm  
102A (156)

Session Chair: **Yasuyuki Ozeki**

2:40pm - 3:00pm

### Combined Raman-Dielectrophoresis Method for Real Time Study: from Bacteria to Nanoplastic

**Giulia Barzan<sup>1,2</sup>, Alessio Sacco<sup>1</sup>, Luisa Mandrile<sup>1</sup>, Andrea Mario Giovannozzi<sup>1</sup>, Chiara Portesi<sup>1</sup>, Andrea Mario Rossi<sup>1</sup>**

<sup>1</sup>Istituto Nazionale di Ricerca Metrologica, Italy; <sup>2</sup>Politecnico di Torino

3:00pm - 3:15pm

### Non-destructive investigation of diffusion of conservation products by micro-SORS

**Alessandra Botteon<sup>1,2</sup>, Claudia Conti<sup>1</sup>, Marco Realini<sup>1</sup>, Chiara Colombo<sup>1</sup>, Pavel Matousek<sup>3</sup>, Chiara Castiglioni<sup>2</sup>**

<sup>1</sup>Institute of Heritage Science (ISPC), National Research Council (CNR); <sup>2</sup>Politecnico di Milano, Department of Chemistry, Materials and Chemical Engineering Giulio Natta; <sup>3</sup>Central Laser Facility, Research Complex at Harwell, STFC Rutherford Appleton Laboratory

3:15pm - 3:30pm

### Characterization of Fibrotic and Epigenetic Alterations in Endometriosis

**Lucas Becker<sup>1,2</sup>, Tara Beyer<sup>1</sup>, Sahra Steinmacher<sup>3</sup>, André Koch<sup>3</sup>, Simone Liebscher<sup>1</sup>, Daniel Carvajal Berrio<sup>1,2</sup>, Eva-Maria Brauchle<sup>1,2,4</sup>, Sara Y Brucker<sup>3</sup>, Julia Marzi<sup>1,2,4</sup>, Martin Weiss<sup>2</sup>, Katja Schenke-Layland<sup>1,2,4,5</sup>**

<sup>1</sup>Institute of Biomedical Engineering, Department for Medical Technologies and Regenerative Medicine, Eberhard Karls University Tuebingen, 72076 Tuebingen, Germany; <sup>2</sup>Cluster of Excellence iFIT (EXC 2180) Image-Guided and Functionally Instructed Tumor Therapies, Eberhard Karls University Tuebingen, 72076 Tuebingen, Germany; <sup>3</sup>Department of Women's Health, Research Institute for Women's Health, Eberhard Karls University Tuebingen, 72076 Tuebingen, Germany; <sup>4</sup>NMI Natural and Medical Sciences Institute at the University of Tuebingen, 72770 Reutlingen, Germany; <sup>5</sup>Department of Medicine, Division of Cardiovascular Medicine, University of California, Los Angeles, CA 90095, United States

3:30pm - 3:45pm

### Raman Analysis of Nanoparticles in Reflection Mode Nanoaperture Optical Tweezers

**Behnam Khosravi, Reuven Gordon**

University of Victoria, Canada

3:45pm - 4:00pm

### AI Powered Drug Classification by Mobile Phone based Raman Spectroscopy

**Un Jeong Kim<sup>1</sup>, Suyeon Lee<sup>1</sup>, Hyocheol Kim<sup>1</sup>, Hyungbin Son<sup>2</sup>, Hyuck Choo<sup>1</sup>**

<sup>1</sup>Samsung Advanced Institute of Technology, Korea, Republic of (South Korea); <sup>2</sup>Chung-Ang University, Korea, Republic of (South Korea)

## SERS-2: SERS/TERS: Application to Biological Systems 2

Monday, August 15, 2022  
2:40pm - 4:00pm  
101A (207)

Session Chair: **Kamilla Malek**

2:40pm - 2:55pm

### Nanoscale Structural Characterization of Biological Systems Using Combined Nano-Raman and Nano-Infrared Spectroscopies

**Dmitry Kourouski**

Texas A&M University, United States of America

2:55pm - 3:10pm

### Transforming Treatment of Patients with Drug Induced Liver Injury using SERS based Lateral Flow Testing

**Sian Sloan-Dennison<sup>1</sup>, Benjamin Clark<sup>1</sup>, Kathleen Scullion<sup>2</sup>, James Dear<sup>2</sup>, Dieter Bingemann<sup>3</sup>, Paul Fineran<sup>2</sup>, David Creasey<sup>3</sup>, Cicely Rathmell<sup>3</sup>, Karen Faulds<sup>1</sup>, Duncan Graham<sup>1</sup>**

<sup>1</sup>University of Strathclyde, United Kingdom; <sup>2</sup>University of Edinburgh, United Kingdom; <sup>3</sup>Wasatch Photonics, USA

3:10pm - 3:25pm

### Fabrication of SERS active substrates through Langmuir-Blodgett and self assembly techniques for screening human cancer cell lines

**Joydeep Chowdhury**

Jadavpur University, India

3:25pm - 3:40pm

### SERS, a Single-molecule and Label-free Technique for Drug Discovery

**Lamvaa M. Almeahmadi<sup>1,2</sup>, Vibhav A. Valsangkar<sup>1,2</sup>, Ken Halvorsen<sup>2</sup>, Qiang Zhang<sup>1</sup>, Jia Sheng<sup>1,2</sup>, Igor K. Lednev<sup>1,2</sup>**

<sup>1</sup>University at Albany, SUNY, United States of America; <sup>2</sup>RNA Institute, College of Arts and Science, University at Albany, SUNY

## TH-1: Fundamentals and Theory 1

Monday, August 15, 2022  
2:40pm - 4:00pm  
103A (144)

Session Chair: **Ludger Wirtz**

2:40pm - 3:00pm

### Strong field Raman spectroscopy; tracking electronic coherences using high harmonics

**Konstantin Dorfman**

East China Normal University, China, People's Republic of

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3:00pm - 3:20pm

**Entangled light in Raman excitation, two-photon absorption and black hole radiation**

Marlan Scully, Zhenhuan Yi

Texas A&M University, United States of America

3:20pm - 3:35pm

**Theory for photoluminescent background in SERS experiments**

Evgeny S. Andrianov<sup>1,2</sup>, Vladislav Yu. Shishkov<sup>1,2</sup>, Alexander A. Pukhov<sup>1,2,3</sup>, Alexey P. Vinogradov<sup>1,2,3</sup>, Alexander A. Lisyansky<sup>4,5</sup>

<sup>1</sup>Dukhov Research Institute of Automatics (VNIIA), Russian Federation; <sup>2</sup>Moscow Institute of Physics and Technology (MIPT), Russian Federation; <sup>3</sup>Institute for Theoretical and Applied Electromagnetics, Russian Federation; <sup>4</sup>Department of Physics, Queens College of the City University of New York, USA; <sup>5</sup>The Graduate Center of the City University of New York, USA

## BIO-3: Biology and Biomedicine 3

Monday, August 15, 2022

4:30pm - 6:00pm

101B (207)

Session Chair: **Lawrence Ziegler**

4:30pm - 5:00pm

**Towards Simple, Real-Time Spectroscopic Coherent Raman Imaging of Biology**

Marcus T Cicerone, Xavier P Audier, Wei-Wen Chen, Ronit Sharon-Frilling, Jessica Zahn

Georgia Institute of Technology, United States of America

5:00pm - 5:15pm

**Multimodal coherent Raman and multiphoton nonlinear optical microscopy to monitor the risk of cancer relapse in human tumors after therapy**

Arianna Bresci<sup>1</sup>, Francesco Manetti<sup>1</sup>, Silvia Ghislanzoni<sup>2</sup>, Federico Vernuccio<sup>1</sup>, Benedetta Talone<sup>1</sup>, Chiara Ceconello<sup>1</sup>, Alejandro De la Cadena<sup>1</sup>, Renzo Vanna<sup>3</sup>, Italia Bongarzone<sup>2</sup>, Giulio Cerullo<sup>1,3</sup>, Dario Polli<sup>1,3</sup>

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>IRCCS Istituto Nazionale dei Tumori Foundation; <sup>3</sup>CNR Institute for photonics and nanotechnologies (IFN)

5:15pm - 5:30pm

**Development of Raman Spectroscopic analysis techniques to assess quality biomarkers in fish**

Jeremy D Landry, Peter J Torley, Ewan W Blanch

RMIT University, Australia

5:30pm - 5:45pm

**Gut microbiota and adipose tissue: another pieces in the obesity puzzle**

Zuzanna Majka<sup>1,2</sup>, Krzysztof Czamara<sup>1</sup>, Joanna Janus<sup>2</sup>, Ewa Stanek<sup>1</sup>, Agnieszka Krawczyk<sup>3</sup>, Dominika Salamon<sup>3</sup>, Tomasz Gosiewski<sup>3</sup>, Agnieszka Kaczor<sup>1,2</sup>

<sup>1</sup>Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, Krakow, Poland; <sup>2</sup>Faculty of Chemistry, Jagiellonian University, Krakow, Poland; <sup>3</sup>Department of Molecular Medical Microbiology, Faculty of Medicine, Jagiellonian University Medical College, Krakow, Poland

## MAT-3: Materials 3

Monday, August 15, 2022

4:30pm - 6:00pm

102B (156)

Session Chair: **Janina Maultzsch**

4:30pm - 5:00pm

**Micro- versus nano-Raman spectroscopy in two-dimensional systems**

Ado Jorio<sup>1,2</sup>, Cassiano Rabelo<sup>2</sup>, Hudson Miranda<sup>2</sup>, Thiago L. Vasconcelos<sup>3</sup>, Luiz Gustavo Cançado<sup>1,2</sup>

<sup>1</sup>Physics Department, UFMG, Brazil; <sup>2</sup>Electrical Engineering, UFMG, Brazil; <sup>3</sup>Inmetro, Brazil

5:15pm - 5:30pm

**Electronic Raman scattering in layered NiPS3**

Xi Ling, Hikari Kitadai

Boston University, United States of America

5:45pm - 6:00pm

**Quantitative Raman Imaging for Crystal Orientation Analysis**

Oleksii Ichenko<sup>1,2</sup>, Yuriy Pilgun<sup>2,3</sup>, Florian Bachmann<sup>4</sup>, Anja Boisen<sup>1</sup>

<sup>1</sup>Technical University of Denmark, Denmark; <sup>2</sup>Lightnovo ApS, Birkerød, Denmark; <sup>3</sup>Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; <sup>4</sup>Xnovo Technology ApS, Koge, Denmark

## NEWT-3: New Techniques 3

Monday, August 15, 2022

4:30pm - 6:00pm

102A (156)

Session Chair: **Andrea Mario Rossi**

4:30pm - 5:00pm

**Structural Analysis of Complex Biomolecules Using Raman Optical Activity (ROA)**

Ewan William Blanch

RMIT University, Australia

5:00pm - 5:15pm

**Frontiers of synchrotron-based UV Resonance Raman spectroscopy for exploring biological macromolecules**

Barbara Rossi

Elettra Sincrotrone Trieste, Italy

(08/26/22)

5:15pm - 5:30pm

### Light Sheet Integral Field Raman Microspectroscopy

Alejandra Zegarra-Valverde<sup>1</sup>, Walter Hauswald<sup>1</sup>, Rainer Heintzmann<sup>1,2</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology, Jena, Germany; <sup>2</sup>Institute of Physical Chemistry, Friedrich Schiller University Jena, Germany

5:30pm - 5:45pm

### Shifted Excitation Raman Difference Spectroscopy as a Promising Tool for Precision Agriculture

Kay Sowoidnich, Martin Maiwald, Bernd Sumpf

Ferdinand-Braun-Institut (FBH), Leibniz-Institut für Höchstfrequenztechnik, Germany

## NLTR-2: Non-linear and Time Resolved: Novel Developments for Biology 2

Monday, August 15, 2022  
4:30pm - 6:00pm  
103A (144)

Session Chair: **Stephen R. Meech**

4:30pm - 4:45pm

### Discrimination of Metastatic State in Prostate Cancer Cells by Identifying Metabolic Changes with Coherent Raman Imaging and Machine Learning

Jessica Lynn Zahn, Marcus T Cicerone, Ronit Sharon-Friling, Wei-Wen Chen, Rajas Poorna

Georgia Institute of Technology, United States of America

4:45pm - 5:00pm

### Label-free stimulated Raman scattering imaging reveals silicone breast implant material in tissue

Ludo van Haasterecht, Liron Zada, Robert W. Schmidt, Freek Ariese

LaserLab Amsterdam, Department of Physics and Astronomy, Faculty of Sciences Vrije Universiteit Amsterdam, The Netherlands

5:00pm - 5:15pm

### DO-SRS Multiplex Super Resolution Metabolic Imaging in Aging and Diseases

Lingyan Shi, Yajuan Li, Anthony Fung, Wenxu Zhang, Hongje Jang

UCSD, United States of America

5:15pm - 5:30pm

### Coherent Raman scattering-guided real-time precision molecular control

Matthew Clark, Gil Gonzalez, Yiyang Luo, Mark Carlsen, Greg Eakins, Mingji Dai, Chi Zhang

Purdue University, United States of America

5:30pm - 5:45pm

### A fingerprint of amyloid plaques in a bitransgenic animal model of Alzheimer's disease obtained by hyperspectral Raman data

Emerson Fonseca<sup>1</sup>, Lucas Lafeta<sup>1</sup>, Renan Cunha<sup>1</sup>, Hudson Miranda<sup>2</sup>, João Campos<sup>1</sup>, Helton Medeiros<sup>3</sup>, Marco Romano-Silva<sup>4</sup>, Raigna Silva<sup>1,5</sup>, Alexandre Barbosa<sup>1,6</sup>, Rafael Vieira<sup>7</sup>, Ado Jorio Jorio<sup>1</sup>, Leandro Malard<sup>1</sup>

<sup>1</sup>Universidade Federal de Minas Gerais, Brazil; <sup>2</sup>bPrograma de Pós-Graduação em Engenharia Elétrica, UFMG, Belo Horizonte, MG 31270-901, Brazil; <sup>3</sup>cDivisão de Metrologia de Materiais, Inmetro, 25250-020, Duque de Caxias, RJ, Brazil; <sup>4</sup>Departamento de Saúde Mental-Faculdade de Medicina, UFMG, Belo Horizonte, MG 30130-100, Brazil; <sup>5</sup>eInstituto de Física, UFU, Uberlândia, MG 38400-920, Brazil; <sup>6</sup>fDepartamento de Oftalmologia, Faculdade de Medicina, HC/UFMG, Belo Horizonte, MG 30130-100, Brazil; <sup>7</sup>gDepartamento de Bioquímica e Imunologia, UFMG, CEP 30161-70 Belo Horizonte, Minas Gerais, Brazil

## SERS-3: Sers/Ters 3

Monday, August 15, 2022  
4:30pm - 6:00pm  
101A (207)

Session Chair: **Regina Ragan**

4:30pm - 5:00pm

### Novel SERS and PIERS substrates for designing bioanalytical platforms

Kamilla Malek

Jagiellonian University in Krakow, Poland

5:00pm - 5:15pm

### Surface Modification of Plasmonic nanostructures: Enabling SERS Detection of Weakly Interacting Analytes

Li-Lin Tay, Shawn Poirier, Ali Ghaemi, John Hulse

National Research Council Canada, Canada

5:15pm - 5:30pm

### Graphene Oxide – Silver Nanoparticles Composites for SERS Detection of 4-aminothiophenol

Mateusz Kasztelan<sup>1,2</sup>, Anna Studzińska<sup>1</sup>, Grażyna Zofia Żukowska<sup>2</sup>, Barbara Palys<sup>1</sup>

<sup>1</sup>University of Warsaw, Poland; <sup>2</sup>Warsaw University of Technology

5:30pm - 5:45pm

### Porous carbon nanowires for metal-free SERS

Kotaro Hiramatsu<sup>1</sup>, Nan Chen<sup>2</sup>, Ting-Hui Xiao<sup>1</sup>, Zhenyi Luo<sup>1</sup>, Yasutaka Kitahama<sup>1</sup>, Naoki Kishimoto<sup>3</sup>, Tamitake Itoh<sup>4</sup>, Zhenzhou Cheng<sup>5</sup>, Keisuke Goda<sup>1,6,7</sup>

<sup>1</sup>University of Tokyo; <sup>2</sup>Beijing Institute of Technology; <sup>3</sup>Tohoku University; <sup>4</sup>National Institute of Advanced Industrial Science and Technology; <sup>5</sup>Tianjin University; <sup>6</sup>Wuhan University; <sup>7</sup>University of California, Los Angeles

(08/26/22)

# TUESDAY ORAL PRESENTATIONS

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## PLN 3: Plenary 3

Tuesday, August 16, 2022  
8:45am - 9:30am  
Ballroom 104 PLENARY (1120)  
Session Chair: **Giulio Cerullo**

8:45am - 9:30am

### Spatially Offset Raman Spectroscopy (SORS)

**Pavel Matousek**

STFC Rutherford Appleton Laboratory, United Kingdom

## BIO-4: Biology and Biomedicine 4

Tuesday, August 16, 2022  
10:00am - 11:50am  
101B (207)  
Session Chair: **Nick Stone**

10:00am - 10:20am

### Detecting drugs in cells and tissues by Raman/SERS microscopy

**Katsumasa Fujita**

Osaka University, Japan

10:20am - 10:35am

### Monitoring of metabolic alterations in tumor microenvironment by surface-enhanced Raman scattering

**Javier Plou**<sup>1,2</sup>, **Isabel Garcia**<sup>1</sup>, **Mathias Charconnet**<sup>1</sup>, **Arkaitz Carracedo**<sup>2,3</sup>, **Luis Liz-Marzan**<sup>2,3</sup>

<sup>1</sup>CIC BiomaGUNE, Spain; <sup>2</sup>CIC BioGUNE, Spain; <sup>3</sup>Ikerbasque, Basque Foundation for Science, 48013 Bilbao, Spain

10:35am - 10:50am

### Spontaneous and Stimulated Raman Scattering of amyloid-beta plaques in post-mortem human AD brain tissue

**BENjamin Lochocki**<sup>1</sup>, **Freek Ariese**<sup>1</sup>, **Jeroen J. M. Hoozemans**<sup>2</sup>, **Johannes F. de Boer**<sup>1</sup>

<sup>1</sup>VU Amsterdam; <sup>2</sup>Amsterdam UMC

10:50am - 11:05am

### Single-cell Raman coupled with stable isotope labelling to study antibiotic resistance and its spread

**Li Cui**, **Hong-Zhe Li**, **Kai Yang**, **Yong-Guan Zhu**

Institute of Urban Environment, Chinese Academy of Sciences, P. R. China

11:05am - 11:20am

### Effects of sulfation and the environment on the structure of chondroitin sulfate studied via Raman optical activity

**Vaclav Profant**<sup>1</sup>, **Christian Johannessen**<sup>2</sup>, **Ewan Blanch**<sup>3</sup>, **Petr Bouř**<sup>4</sup>, **Vladimír Baumruk**<sup>1</sup>

<sup>1</sup>Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic; <sup>2</sup>Department of Chemistry, University of Antwerp, Belgium; <sup>3</sup>School of Science, RMIT University, Melbourne, Australia; <sup>4</sup>Institute of Organic Chemistry and Biochemistry, Academy of Sciences, Prague, Czech Republic

11:20am - 11:35am

### Using Raman Spectroscopy to Differentiate Between Various Genospecies of *Borrelia* in Mouse Blood

**Nicolas King Goff**, **Tianyi Dou**, **Artem Rogovskyy**, **Dmitry Kurouski**

Texas A&M University, United States of America

11:35am - 11:50am

### Structure-function correlation studies of a non-canonical heme oxygenase from *Mycobacterium tuberculosis*

**Piotr J. Mak**, **Samuel N. Snyder**

Saint Louis University, United States of America

## MAT-4: Materials 4

Tuesday, August 16, 2022  
10:00am - 11:50am  
102B (156)

Session Chair: **Angela R. Hight Walker**

10:00am - 10:20am

### Raman Spectroscopy Studies of 1D Systems: Carbon and Sulfur Chains

**Antonio G Souza Filho**

Universidade Federal do Ceará, Brazil

10:20am - 10:40am

### Electron-phonon processes in twisted bilayer graphene and low symmetry 2D materials investigated by resonance and polarized Raman spectroscopy

**Marcos Pimenta**

UFMG, Brazil

10:40am - 10:55am

### Probing lattice dynamics and electronic resonances in hexagonal Ge and SixGe1-x alloys in nanowires using Raman spectroscopy

**Diego de Matteis**<sup>1</sup>, **Marta De Luca**<sup>1</sup>, **Elham Fadaly**<sup>2</sup>, **Marcel Verheijen**<sup>2</sup>, **Miquel López-Suárez**<sup>3</sup>, **Riccardo Rurali**<sup>3</sup>, **Erik Bakkers**<sup>2</sup>, **Ilaria Zardo**<sup>1</sup>

<sup>1</sup>Departement Physik, Universität Basel, 4056 Basel, Switzerland; <sup>2</sup>Department of Applied Physics, Eindhoven University of Technology, 5612AP Eindhoven, The Netherlands; <sup>3</sup>Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus de Bellaterra, 08193 Bellaterra, Barcelona, Spain



(08/26/22)

10:55am - 11:10am

**Raman scattering obtained from laser excitation of MAPbI<sub>3</sub> single crystal**

**Hagit Aviv, Tal Ben-Uliel, Yaakov R. Tischler**

Bar Ilan University, Israel

11:10am - 11:25am

**Raman scattering study of phase transition in methyl ammonium lead halide perovskite single crystals**

**Trang Thi Thu Nguyen<sup>1</sup>, Yejin Kim<sup>1</sup>, Hye Ri Jung<sup>1</sup>, William Jo<sup>1</sup>, Won Seok Woo<sup>2</sup>, Chang Won Ahn<sup>2</sup>, Shinuk Cho<sup>2</sup>, Ill Won Kim<sup>2</sup>, Maryam Bari<sup>3</sup>, Zuo-Guang Ye<sup>3</sup>, Seokhyun Yoon<sup>1</sup>**

<sup>1</sup>Ewha womans university, Seoul, Republic of (South Korea); <sup>2</sup>University of Ulsan, Ulsan, Korea, Republic of (South Korea); <sup>3</sup>Simon Fraser University, Burnaby, Canada

## NEWT-4: New Techniques 4

Tuesday, August 16, 2022

10:00am - 11:50am

102A (156)

Session Chair: **Reuven Gordon**

10:00am - 10:20am

**Arrayed Nanoplasmonic Sensors and Actuators**

**Wei-Chuan Shih**

University of Houston, United States of America

10:20am - 10:35am

**Hyperspectral and chemically-selective 2D and 3D imaging in mid-infrared**

**Dave Knez, Eric Potma, Dmitry Fishman**

UC Irvine, United States of America

10:35am - 10:50am

**A Raman filter-based system, operating in ambient light through lock-in amplification for real-time, accurate assessment of disease markers**

**Hao Guo<sup>1</sup>, Alexey Tikhomirov<sup>1</sup>, Alexandria Mitchell<sup>1</sup>, Ian Alwayn<sup>2</sup>, Haishan Zeng<sup>3</sup>, Kevin Hewitt<sup>1</sup>**

<sup>1</sup>Dalhousie University, Halifax, Nova Scotia, Canada; <sup>2</sup>Leiden University Medical Centre, Leiden, Netherlands; <sup>3</sup>BC Cancer Research Centre, Vancouver, BC, Canada

10:50am - 11:05am

**Exploring new ways of studying photodegradation by means of Raman spectroscopy inside a liquid core waveguide exposure cell**

**Iris Groeneveld<sup>1</sup>, Govert W. Somsen<sup>1</sup>, Maarten R. van Bommel<sup>2</sup>, Freek Ariese<sup>3</sup>**

<sup>1</sup>Vrije Universiteit Amsterdam, Netherlands, The; <sup>2</sup>University of Amsterdam, Netherlands, The; <sup>3</sup>LaserLab, Vrije Universiteit Amsterdam, Netherlands, The

11:05am - 11:20am

**Monitoring phytoplankton population using NIR Raman spectroscopy, excitation/emission spectroscopy and chemometric analysis**

**Nina Igorevna Novikova**

The University of Auckland, New Zealand

11:20am - 11:35am

**Raman Spectroscopy for Detecting Traces of Explosives at Security Checkpoints**

**Lisa B. Dreier, Anja Köhntopp, Christoph Kölbl, Frank Duschek**

German Aerospace Center, Germany

11:35am - 11:50am

**Fluorescence guided photothermal infrared microscopy at single-cell resolution**

**Yeran Bai<sup>1</sup>, Xinran Tian<sup>1</sup>, Andrew Longhini<sup>1</sup>, Zhongyue Guo<sup>2</sup>, Ji-Xin Cheng<sup>2</sup>, Kenneth Kosik<sup>1</sup>, Craig Prater<sup>3</sup>**

<sup>1</sup>Neuroscience Research Institute, University of California Santa Barbara, Santa Barbara CA 93105, USA; <sup>2</sup>Biomedical Engineering, Boston University, Boston, MA 02215; <sup>3</sup>Photothermal Spectroscopy Corporation, Santa Barbara, CA 93101, USA

## NLTR-3: Non-linear and Time Resolved 3

Tuesday, August 16, 2022

10:00am - 11:50am

103A (144)

Session Chair: **Tahei Tahara**

10:00am - 10:20am

**Raman Vibrational Coherence Spectroscopy and Proton Tunneling in Green Fluorescent Protein**

**Paul Morris Champion**

Northeastern University, United States of America

10:20am - 10:40am

**Accessing excited potential energy surfaces by Raman excitation profiles measured via time-domain Raman spectroscopy**

**Batignani Giovanni<sup>1,2</sup>, Sansone Carlotta<sup>1</sup>, Mai Emanuele<sup>1</sup>, Ferrante Carino<sup>2,3</sup>, Fumero Giuseppe<sup>1</sup>, Mukamel Shaul<sup>4</sup>, Scopigno Tullio<sup>1,2,5</sup>**

<sup>1</sup>Dipartimento di Fisica, Università di Roma "La Sapienza", Roma I-00185, Italy; <sup>2</sup>Istituto Italiano di Tecnologia, Center for Life Nano Science @Sapienza, Roma I-00161, Italy; <sup>3</sup>ENEA, FSN-FISS-SNI Laboratory, Casaccia R.C. Via Anguillarese 301, 00123 Roma, Italy; <sup>4</sup>Department of Chemistry, University of California, Irvine, California 92623, United States; <sup>5</sup>Istituto Italiano di Tecnologia, Graphene Labs, Via Morego 30, I-16163 Genova, Italy

(08/26/22)

10:40am - 10:55am

**Transient Raman study of excited state dynamics of 1,9'-bianthryl**

**Palas Roy<sup>1</sup>, Faisal Al-Kahtani<sup>1</sup>, Andrew N. Cammidge<sup>1</sup>, Stephen R. Meech<sup>1</sup>**

<sup>1</sup>School of Chemistry, University of East Anglia, Norwich Research Park, Norwich NR4 7TJ, U.K.

10:55am - 11:10am

**Low-Wavenumber Fourier-Transform Impulsive Stimulated Raman Spectrometer with Single Femtosecond Oscillator**

**Mauro Falconeri<sup>1</sup>, Michele Marrocco<sup>1</sup>, Serena Gagliardi<sup>1</sup>, Flaminia Rondino<sup>1</sup>, Yejun Wang<sup>2</sup>, Waruna Kulatilaka<sup>2</sup>, Eugenio DelRe<sup>3</sup>, Fabrizio Di Mei<sup>3</sup>, Ludovica Falsi<sup>3</sup>**

<sup>1</sup>ENEA, Italy; <sup>2</sup>Texas A&M University, USA; <sup>3</sup>Università "Sapienza", Italy

11:10am - 11:25am

**Liquid-Liquid Phase Separation in Synthetic Polymers via Femtosecond Stimulated Raman Microscopy**

**Francisco van Riel Neto, Carolin Borbeck, Peter Gilch**  
Heinrich Heine University, Germany

## SERS-4: Sers/Ters 4

Tuesday, August 16, 2022

10:00am - 11:50am

101A (207)

Session Chair: **Bin Ren**

10:00am - 10:20am

**Tip-enhanced Raman scattering - high resolution and beyond**

**Volker Deckert<sup>1,2,3</sup>, Christiane Höppener<sup>2</sup>**

<sup>1</sup>University of Jena, Germany; <sup>2</sup>Leibniz Institute of Photonic Technology, Jena, Germany; <sup>3</sup>IQSE, Texas A&M University, College Station, USA

10:20am - 10:35am

**Highly sensitive SERS sensor based on Ag nanoparticles for heavy metals detection in water**

**Verónica Montes-García<sup>1</sup>, Sara Gullace<sup>1,2</sup>, Giuseppe Calogero<sup>3</sup>, Stefano Casalini<sup>1,4</sup>, Paolo Samori<sup>1</sup>**

<sup>1</sup>Institut de Science et d'Ingénierie Supramoléculaires (I.S.I.S.) Université de Strasbourg & CNRS, 8, allée Gaspard Monge, Strasbourg (France); <sup>2</sup>Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, V.le F. Stagno d'Alcontres 31, 98166, Messina (Italy); <sup>3</sup>IPCF-CNR, Istituto per i Processi Chimico-Fisici, V.le F. Stagno d'Alcontres 37, 98158, Messina (Italy); <sup>4</sup>Università degli Studi di Padova, Dipartimento di Scienze Chimiche, via Marzolo 1, 35131 Padova (Italy) (current address)

10:35am - 10:50am

**Nanoscale Chemical Imaging of Supported Lipid Monolayers using Tip-Enhanced Raman Spectroscopy**

**Yashashwa Pandey<sup>1</sup>, Naresh Kumar<sup>1</sup>, Guillaume Goubert<sup>2</sup>, Renato Zenobi<sup>1</sup>**

<sup>1</sup>ETH Zurich, Switzerland; <sup>2</sup>Université du Québec à Montréal

10:50am - 11:05am

**Low-Level Organic Detection on Icy Worlds using the Compact Integrated Raman Spectrometer (CIRS)**

**James Lambert, Tuan Vu, Mark Anderson**

Jet Propulsion Laboratory, United States of America

11:05am - 11:20am

**Observation of nano-confinement-induced ice nucleation: Ice-vii to ice-ih transition**

**Jonggeun Hwang<sup>1</sup>, Dongha Shin<sup>1,2</sup>, Xingcai Zhang<sup>3,4</sup>, Wonho Jhe<sup>1</sup>**

<sup>1</sup>Center for 0D Nanofluidics, Institute of Applied Physics, Department of Physics and Astronomy, Seoul National University, Seoul 08826, Korea; <sup>2</sup>Department of Chemistry and Chemical Engineering, Inha University, Incheon 22212, Korea; <sup>3</sup>John A. Paulson School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, 02138, USA; <sup>4</sup>School of Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA

## PLN 4: Plenary 4

Tuesday, August 16, 2022

2:25pm - 3:10pm

Ballroom 104 PLENARY (1120)

Session Chair: **Eric Olaf Potma**

2:25pm - 3:10pm

**Structural and optical properties of 2D van-der-Waals materials**

**Janina Maultzsch**

Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

## PD-1: Post Deadline 1

Tuesday, August 16, 2022

3:20pm - 3:50pm

101A (207)

Session Chair: **Dan Fu**

**Beyond the Tunneling Limit of Quantum Plasmonics in Tip-Induced GO-Enhanced Raman Spectroscopy**

**Dmitri Voronine**

University of South Florida, United States of America

## PD-2: Post Deadline 2

Tuesday, August 16, 2022

3:20pm - 3:50pm

101B (207)

Session Chair: **Giovanni Batignani**

**Functional stimulated Raman imaging for complex sub-cellular analysis**

**Lu Wei**

California Institute of Technology, United States of America

(08/26/22)

## BIO-5: Biology and Biomedicine 5

Tuesday, August 16, 2022

4:30pm - 6:00pm

101B (207)

Session Chair: **Karen Faulds**

4:30pm - 5:00pm

**Clinical Raman spectroscopy - a potential panacea (or just a pretty good compliment to current clinical diagnostics)?**

**Nick Stone**<sup>1,2,3</sup>

<sup>1</sup>University of Exeter; <sup>2</sup>Gloucestershire Hospitals NHS Foundation Trust; <sup>3</sup>Royal Devon and Exeter NHS Foundation Trust

5:00pm - 5:15pm

**In vivo monitoring disease progression in rodent models of inflammatory arthritis using fibre-optic Raman spectroscopy**

**Anders Runge Walther**<sup>1</sup>, **Elzbieta Stepula**<sup>2</sup>, **Nicholas Ditzel**<sup>3</sup>, **Moustapha Kassem**<sup>3</sup>, **Mads Bergholt**<sup>2</sup>, **Martin Aage Barsøe Hedegaard**<sup>1</sup>

<sup>1</sup>University of Southern Denmark, DK; <sup>2</sup>King's College London, UK; <sup>3</sup>Odense University Hospital, SDU, DK

## MAT-5: Materials 5

Tuesday, August 16, 2022

4:30pm - 6:00pm

102B (156)

Session Chair: **Marcos Pimenta**

4:30pm - 5:00pm

**Magneto-Raman Spectroscopy to Identify Spin Structure in Low-Dimensional Quantum Materials**

**Angela R. Hight Walker**

Physical Measurement Laboratory, National Institute of Standards and Technology (NIST), Gaithersburg, Maryland 20899, USA

5:00pm - 5:15pm

**Distinct Magneto-Raman Signatures of Spin-Flip Phase Transitions in 2D Magnet CrI3**

**Amber McCreary**<sup>1</sup>, **Thuc Mai**<sup>1,2</sup>, **Franz Utermohlen**<sup>2</sup>, **Jeffrey Simpson**<sup>1,3</sup>, **Kevin Garrity**<sup>1</sup>, **Xiaozhou Feng**<sup>2</sup>, **Dmitry Shcherbakov**<sup>2</sup>, **Yanglin Zhu**<sup>4</sup>, **Jin Hu**<sup>5</sup>, **Daniel Weber**<sup>2</sup>, **Kenji Watanabe**<sup>6</sup>, **Takashi Taniguchi**<sup>6</sup>, **Joshua Goldberger**<sup>2</sup>, **Zhiqiang Mao**<sup>4</sup>, **Chun Ning Lau**<sup>2</sup>, **Yuanming Lu**<sup>2</sup>, **Nandini Trivedi**<sup>2</sup>, **Rolando Valdes Aguilar**<sup>2</sup>, **Angela Hight Walker**<sup>1</sup>

<sup>1</sup>National Institute of Standards and Technology, United States of America; <sup>2</sup>The Ohio State University, United States of America; <sup>3</sup>Towson University, United States of America; <sup>4</sup>The Pennsylvania State University, United States of America; <sup>5</sup>The University of Arkansas, United States of America; <sup>6</sup>National Institute for Materials Science, Japan

5:15pm - 5:30pm

**Theoretical Design, Synthesis and Characterization of Novel Thermochromic Materials**

**Bernardo Albuquerque Nogueira**<sup>1,2</sup>, **Alberto Milani**<sup>2</sup>, **Rita Cardoso**<sup>1</sup>, **José António Paixão**<sup>3</sup>, **Chiara Castiglioni**<sup>2</sup>, **Rui Fausto**<sup>1</sup>

<sup>1</sup>CQC, Department of Chemistry, University of Coimbra, Portugal; <sup>2</sup>CMIC, Dipartimento di Chimica, Materiali e Ingegneria Chimica "G. Natta", Politecnico di Milano, Italy; <sup>3</sup>CFisUC, Department of Physics, University of Coimbra, Portugal

## NEWT-5: New Techniques 5

Tuesday, August 16, 2022

4:30pm - 6:00pm

102A (156)

Session Chair: **Pavel Matousek**

4:30pm - 5:00pm

**Versatile Applications of Two-Dimensional Correlation Analysis in Raman Spectroscopy**

**Yeonju Park**<sup>1</sup>, **Isao Noda**<sup>2</sup>, **Young Mee Jung**<sup>1</sup>

<sup>1</sup>Kangwon National University, Korea, Republic of (South Korea); <sup>2</sup>University of Delaware (USA)

5:00pm - 5:15pm

**Full Spectrum Raman Excitation Mapping: Rapid Raman Spectroscopy of Nanocarbons from visible to near-IR**

**Paul Finnie**<sup>1</sup>, **Jianying Ouyang**<sup>1</sup>, **Jianfu Ding**<sup>1</sup>, **Jeff Fagan**<sup>2</sup>

<sup>1</sup>National Research Council Canada, Canada; <sup>2</sup>National Institute of Standards and Technology

5:15pm - 5:30pm

**Raman Spectroscopy on Europa: A Radiation Challenge**

**Lauren R Doherty**, **Ian B Hutchinson**, **Melissa McHugh**, **Hannah N Lerman**

University of Leicester, United Kingdom

5:30pm - 5:45pm

**RLS, a Raman Spectrometer for Mars Exploration**

**Fernando Rull**<sup>1</sup>, **Andoni Moral**<sup>2</sup>, **Guillermo Lopez**<sup>1</sup>, **Carlos Perez**<sup>2</sup>, **Jose Antonio Manrique**<sup>1</sup>, **Laura Seoane**<sup>2</sup>, **Marco Veneranda**<sup>1</sup>, **Jose Antonio Rodriguez**<sup>2</sup>, **Pablo Rodriguez**<sup>2</sup>

<sup>1</sup>Unidad Asociada UVA-CSIC, University of Valladolid, Valladolid, Spain; <sup>2</sup>Instituto de Técnica Aeroespacial (INTA), Madrid, Spain

5:45pm - 6:00pm

**Spectral focusing coherent Raman scattering microscopy using the triple output dual optical parametric oscillator CRONUS-2P**

**Dominykas Gudavičius**<sup>1,2</sup>, **Wolfgang Langbein**<sup>1</sup>

<sup>1</sup>Cardiff University, School of Physics and Astronomy, The Parade, Cardiff CF24 3AA, United Kingdom; <sup>2</sup>Light Conversion, Keramiku st. 2B, LT-10233 Vilnius, Lithuania

(08/26/22)

## SERS-5: Sers/Ters 5

Tuesday, August 16, 2022  
4:30pm - 6:00pm  
101A (207)

Session Chair: **Dmitry Kurouski**

4:30pm - 5:00pm

### Tip-enhanced Raman Spectroscopy for Nanoscale Characterization of Two-Dimensional Materials

**Teng-Xiang Huang, Si-Si Wu, Kai-Qiang Lin, Yi-Fan Bao, Xiang Wang, Bin Ren**

State Key Laboratory of Physical Chemistry of Solid Surfaces, Collaborative Innovation Center of Chemistry of Energy Materials, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China

5:00pm - 5:15pm

### DNA Origami Directed Plasmonic Hot-Spot for Studying Molecular State and Spin Crossover by Single Molecule SERS

**Anushree Dutta<sup>1</sup>, Kostj Tapio<sup>2</sup>, Antonio Suma<sup>3</sup>, Amr Mostafa<sup>1</sup>, Yuya Kanehira<sup>1</sup>, Vincenzo Carnevale<sup>4</sup>, Giovanni Bussi<sup>5</sup>, Ilko Bald<sup>1</sup>**

<sup>1</sup>UNIVERSITY OF POTSDAM, Germany; <sup>2</sup>University of Jyväskylä, Finland; <sup>3</sup>Universita degli Studi di Bari Aldo Moro, Italy; <sup>4</sup>Temple University, USA; <sup>5</sup>Scuola Internazionale Superiore di Studi Avanzati, Italy

5:15pm - 5:30pm

### Parametric Nanopore Array fabrication for visible spectrum SERS of molecule translocation

**Devin B. O'Neill, Marzia Iarossi, Angela de Fazio, Stoyan Yordanova, Erick Ulin-Avila, Francesco Tantussi, Francesco de Angelis**

Italian Institute of Technology, Italy

## TH-2: Fundamentals and Theory 2

Tuesday, August 16, 2022  
4:30pm - 6:00pm  
103A (144)

Session Chair: **Giuseppe Fumero**

4:30pm - 5:00pm

### Raman Scattering in the Quantum Domain: Entangling Light and Matter

**Ian Walmsley**

Imperial College London, United Kingdom

5:00pm - 5:20pm

### Quantum advantage of seeded, squeezed light in stimulated Brillouin Spectroscopy and Imaging

**girish agarwal**

Texas A & M University, United States of America

5:20pm - 5:35pm

### Selective Enhancement of Peptide Raman Signals explained by Synchrotron Resonance Raman Experiments and Simulations

**Sara Gomez<sup>1</sup>, Franco Egidi<sup>1</sup>, Tommaso Giovannini<sup>1</sup>, Barbara Rossi<sup>2</sup>, Chiara Cappelli<sup>1</sup>**

<sup>1</sup>Scuola Normale Superiore di Pisa, Italy; <sup>2</sup>Elettra Sincrotrone Trieste S.C.p.A.

5:35pm - 5:50pm

### Raman and Raman Optical Activity of amino acids in aqueous solution: a computational investigation

**Chiara Sepali, Piero Lafiosca, Tommaso Giovannini, Chiara Cappelli**

Scuola Normale Superiore, Italy

5:50pm - 6:05pm

### Theory of Abnormal Raman Bands of Wagging Vibrational Modes in Aromatic Amine and Benzyl Radicals

**De-Yin Wu, Xiao-Ru Shen, Jia Liu, Jian-Zhang Zhou, Zhong-Qun Tian**

Xiamen University, China, People's Republic

# WEDNESDAY ORAL PRESENTATIONS

## PLN 5: Plenary 5

Wednesday, August 17, 2022  
8:45am - 9:30am  
Ballroom 104 PLENARY (1120)  
Session Chair: **Lawrence Ziegler**

8:45am - 9:30am

### Atomic limit in microscopy & photon confinement

**V. Ara Apkarian**

UCI, United States of America

(08/26/22)

## BIO-6: Biology and Biomedicine 6

Wednesday, August 17, 2022  
10:00am - 11:50am  
101B (207)

Session Chair: **Thomas Wilhelm Bocklitz**

**10:00am - 10:20am**

### Label-free identification of human T cells activation using Raman spectroscopy

**Aleksandra Borek-Doros<sup>1,2</sup>, Anna Maria Nowakowska<sup>1</sup>, Paulina Laskowska<sup>3</sup>, Maciej Szydłowski<sup>3</sup>, Piotr Mrówka<sup>3,4</sup>, Piotr Juszczyński<sup>3</sup>, Małgorzata Baranska<sup>1,2</sup>, Katarzyna Majzner<sup>1</sup>**

<sup>1</sup>Jagiellonian University, Faculty of Chemistry, Krakow, Poland; <sup>2</sup>Jagiellonian University, Jagiellonian Centre for Experimental Therapeutics (JCET), Krakow, Poland; <sup>3</sup>Department of Experimental Hematology, Institute of Hematology and Transfusion Medicine, Warsaw, Poland; <sup>4</sup>Department of Biophysics, Physiology and Pathophysiology, Medical University of Warsaw, Warsaw, Poland

**10:20am - 10:40am**

### Raman signature of SARS-CoV-2

**Bayden Wood**  
Monash University, Australia

**10:40am - 10:55am**

### Non-invasive monitoring maturation process of hepatocytes by Raman Microscopy

**Menglu Li<sup>1,2</sup>, Yasunori Nawa<sup>1,2</sup>, Satoshi Fujita<sup>1,3</sup>, Katsumasa Fujita<sup>1,2</sup>**

<sup>1</sup>AIST-Osaka University Advanced Photonics and Biosensing Open Innovation Laboratory (PhotoBIO-OIL), National Institute of Advanced Industrial Science and Technology, Japan; <sup>2</sup>Department of Applied Physics, Graduate School of Engineering, Osaka University, Japan; <sup>3</sup>The Institute of Scientific and Industrial Research (ISIR), Osaka University, Japan

**10:55am - 11:10am**

### The Biochemical Profile of Breast Cancer - Diagnosing with Raman Spectroscopy

**Adriana P. Mamede<sup>1,3</sup>, Inês P. Santos<sup>1</sup>, Ana L.M. Batista de Carvalho<sup>1</sup>, Luis P.Q. Rei<sup>2</sup>, Maria Silva<sup>4</sup>, Paulo Figueiredo<sup>5</sup>, Maria P.M. Marques<sup>1,3</sup>, Luis A.E. Batista de Carvalho<sup>1</sup>**

<sup>1</sup>Unidade de I&D Química-Física Molecular, University of Coimbra, Portugal; <sup>2</sup>Portuguese Oncology Institute Francisco Gentil (IPOFG, Coimbra, Portugal); <sup>3</sup>Department of Life Sciences, University of Coimbra, Portugal; <sup>4</sup>Surgery Department, Portuguese Oncology Institute Francisco Gentil (IPOFG, Coimbra, Portugal); <sup>5</sup>Pathology Department, Portuguese Oncology Institute Francisco Gentil (IPOFG, Coimbra, Portugal)

**11:10am - 11:25am**

### Three-Dimensional Scaffolds for Monitoring Drug Diffusion and Cell Death Events by Surface-Enhanced Raman Scattering

**Pablo S. Valera<sup>1,2,3</sup>, Javier Plou<sup>1,2,3</sup>, Beatriz Molina-Martínez<sup>1</sup>, Isabel García<sup>1,3</sup>, Arkaitz Carracedo<sup>3,4,5</sup>, Luis M. Liz Marzán<sup>1,2,3</sup>**  
<sup>1</sup>CIC biomaGUNE, Basque Research and Technology Alliance (BRTA), Paseo de Miramón 182, 20014 Donostia - San Sebastián, Spain; <sup>2</sup>Biomedical Research Networking Center in Bioengineering, Biomaterials, and Nanomedicine (CIBER-BBN), 20014 Donostia-San Sebastián, Spain; <sup>3</sup>CIC bioGUNE, Basque Research and Technology Alliance (BRTA), 48160 Derio, Spain; <sup>4</sup>Ikerbasque, Basque Foundation for Science, 48013 Bilbao, Spain; <sup>5</sup>Biomedical Research Networking Center in Oncology (CIBERONC), 48160 Derio, Spain

**11:25am - 11:40am**

### Identification of immune cell phenotypes to study cell-material and tumor-immune interactions

**Julia Marzi<sup>1,2,3</sup>, Nora Feuerer<sup>1,2</sup>, Daniel Carvajal Berrio<sup>1,3</sup>, Martin Weiss<sup>2,4</sup>, Peter Loskill<sup>2,5</sup>, Katja Schenke-Layland<sup>1,2,3,6</sup>**

<sup>1</sup>Institute of Biomedical Engineering, Department for Medical Technologies & Regenerative Medicine, Eberhard Karls University Tübingen, Germany; <sup>2</sup>NMI Natural and Medical Sciences Institute at the University of Tübingen, Reutlingen, Germany; <sup>3</sup>Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies", Eberhard Karls University Tübingen, Germany; <sup>4</sup>Department of Women's Health, Eberhard Karls University Tübingen, Germany; <sup>5</sup>Institute of Biomedical Engineering, Department for Microphysiological Systems, Eberhard Karls University Tübingen, Germany; <sup>6</sup>Dept. of Medicine/Cardiology, University of California Los Angeles (UCLA), Los Angeles/CA, USA

## NEWT-6: New Techniques 6

Wednesday, August 17, 2022  
10:00am - 11:50am  
102A (156)

Session Chair: **Vladislav V Yakovlev**

**10:00am - 10:20am**

### Ultrafast Raman Spectroscopy in the Single Phonon Regime: Entangling Light and Vibration

**Christophe Galland**  
EPFL, Switzerland

**10:20am - 10:35am**

### Raman Spectroscopy for Blue Bioeconomy

**Simona Cinta Pinzaru**  
Babes-Bolyasi University, Romania

(08/26/22)

10:35am - 10:50am

**Improving SERS Reproducibility and Throughput by Affordable Custom-Made Spinning Cell Device**

Nicolò Simone Villa<sup>1</sup>, Federica Iacoe<sup>1</sup>, Chiara Zanchi<sup>1</sup>, Paolo Maria Ossi<sup>2</sup>, Matteo Tommasini<sup>1</sup>, Andrea Lucotti<sup>1</sup>

<sup>1</sup>Department of Chemistry, Materials and Chemical Engineering “G. Natta”, Politecnico di Milano, Italy; <sup>2</sup>Department of Energy, Politecnico di Milano, Italy

10:50am - 11:05am

**Raman spectroscopy for biodegradation monitoring of anthropogenic organic contaminants in a diffusive fluid matrix**

Mario Marchetti<sup>1</sup>, Marc Offroy<sup>2</sup>, Patrice Bourson<sup>3</sup>, Ferroudja Abdat<sup>3</sup>, Guillaume Casteran<sup>4</sup>

<sup>1</sup>MAST-FM2D, Univ Gustave Eiffel, IFSTTAR; <sup>2</sup>Université de Lorraine, CNRS, LIEC; <sup>3</sup>LMOPS/CentraleSupélec EA 4423, Université de Lorraine; <sup>4</sup>Direction Générale de l’Aviation Civile—Service Technique de l’Aviation Civile

11:05am - 11:20am

**Quantitative analysis of the hyperfine structure of binary sodium silicate glasses and their melts by Raman spectroscopy jointly with NMR**

Jinglin You

State Key Laboratory of Advanced Special Steel & Shanghai Key Laboratory of Advanced Ferrometallurgy & School of Materials Science and Engineering, Shanghai University, China

11:20am - 11:35am

**Sensing dopamine with Fe(III)-sensitized AuNP monolayer 1nm-gap SERS films**

Marika Niihori<sup>1</sup>, Tamas Foldes<sup>2</sup>, Rakesh Arul<sup>1</sup>, David-Benjamin Gryns<sup>1</sup>, Charlie Readman<sup>1</sup>, Bart de Nijs<sup>1</sup>, Edina Rosta<sup>2</sup>, Jeremy J Baumberg<sup>1</sup>

<sup>1</sup>Nanophotonics Centre, Dept of Physics, Cavendish Laboratory, University of Cambridge, UK; <sup>2</sup>Dept of Physics and Astronomy, University College London, UK

11:35pm - 11:50pm

**Application of LC-Raman method to sugar analysis**

Liang-Hung Weng, Hirotsugu Hiramatsu

National Yang Ming Chiao Tung University, Taiwan

**NLTR-4: Non-linear and Time Resolved 4**

Wednesday, August 17, 2022

10:00am - 11:50am

103A (144)

Session Chair: **Sanford Ruhman**

10:00am - 10:30am

**Ultrafast dynamics at the water interfaces revealed by femtosecond phase-sensitive nonlinear vibrational spectroscopy**

Tahei Tahara

RIKEN, Japan

10:30am - 10:50am

**Probing Reaction Dynamics in Higher-Lying States using Transient Stimulated Raman Spectroscopy**

Timothy J. Quincy, Matthew S. Barclay, Marco Caricato, Christopher G. Elles

University of Kansas, United States of America

10:50am - 11:05am

**Chemically resolved pump-probe investigations of molecular dynamics**

Riccardo Mincigrucci, Emiliano Principi, Claudio Masciovecchio

Elettra Sincrotrone Trieste, Italy;

11:05am - 11:20am

**Ultrafast spectroscopy of oriented single crystals of [2.2]Paracyclophane: Time resolved springing of a molecular “trap”**

Omer Shalom Haggag, Noam Levinsky, Sanford Ruhman

The Hebrew University of Jerusalem, Israel

11:20am - 11:35am

**Vibrational sum-frequency generation spectroscopy reveals glycosaminoglycan structure and its interaction with lipid membranes**

Gergo Peter Szekeres<sup>1,2</sup>, Szilvia Krekic<sup>3,4,5</sup>, Rebecca L. Miller<sup>6</sup>, Mark Mero<sup>7</sup>, Kevin Pagel<sup>1,2</sup>, Zsuzsanna Heiner<sup>3</sup>

<sup>1</sup>Institut für Chemie und Biochemie, Freie Universität Berlin, Germany; <sup>2</sup>Department of Molecular Physics, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany; <sup>3</sup>School of Analytical Sciences Adlershof, Humboldt-Universität zu Berlin, Berlin, Germany; <sup>4</sup>Institute of Biophysics, Biological Research Centre, Szeged, Hungary; <sup>5</sup>Doctoral School of Multidisciplinary Medical Sciences, University of Szeged, Hungary; <sup>6</sup>Copenhagen Center for Glycomics, Department of Cellular and Molecular Medicine, Faculty Sciences, University of Copenhagen, Denmark; <sup>7</sup>Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany

**SERS-6: Sers/Ters 6**

Wednesday, August 17, 2022

10:00am - 11:50am

101A (207)

Session Chair: **Janina Kneipp**

10:00am - 10:20am

**SERS detection schemes in complex biological matrices**

Dana Ciialla-May<sup>1,2,3</sup>, Juergen Popp<sup>1,2,3</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology, Germany; <sup>2</sup>Friedrich Schiller University Jena; <sup>3</sup>Research Campus Infectognoctic

(08/26/22)

10:20am - 10:35am

**Tip-enhanced Raman Spectroscopy (TERS) of core-shell block copolymer micelles with a cross-linked core**  
**Christiane Höppener<sup>1</sup>, Johanna Katrin Elter<sup>2</sup>, Felix Helmut Schacher<sup>2,3</sup>, Volker Deckert<sup>1,3,4</sup>**

<sup>1</sup>Leibniz Institute of Photonic Technologies (IPHT) and Institute of Physical Chemistry Lessingstraße 10, D-07743 Jena, Germany; <sup>2</sup>Institute of Organic Chemistry and Macromolecular Chemistry (IOMC), Friedrich-Schiller-University Jena, Lessingstraße 8, D-07743 Jena, Germany; <sup>3</sup>Jena Center for Soft Matter (JCSM), Friedrich-Schiller-University Jena, Philosophenweg 7, Germany; <sup>4</sup>Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Lessingstraße 10, D-07743 Jena, Germany and Institute of Quantum Science and Engineering, Texas A&M University, College Station, TX 77843-4242, USA

10:35am - 10:50am

**Nanostars for label-free SERS**

**Cecilia Spedalieri, Janina Kneipp**  
Humboldt-Universität zu Berlin, Germany

10:50am - 11:05am

**Reliable determination of SERS enhancement factor: molecular quantification through reference-free X-ray fluorescence**

**Eleonora Cara<sup>1</sup>, Luisa Mandrile<sup>1</sup>, Federica Celegato<sup>1</sup>, Alessio Sacco<sup>1</sup>, Andrea Mario Giovannozzi<sup>1</sup>, Andrea Mario Rossi<sup>1</sup>, Philipp Hoenicke<sup>2</sup>, Yves Kayser<sup>2</sup>, Burkhard Beckhoff<sup>2</sup>, Natascia De Leo<sup>1</sup>, Davide Marchi<sup>3</sup>, Alberto Zoccante<sup>3</sup>, Maurizio Cossi<sup>3</sup>, Michele Laus<sup>3</sup>, Micaela Castellino<sup>4</sup>, Luca Boarino<sup>1</sup>, Federico Ferrarese Lupi<sup>1</sup>**

<sup>1</sup>Istituto Nazionale di Ricerca Metrologica, INRiM, Italy; <sup>2</sup>Physikalisch-Technische Bundesanstalt, PTB, Germany; <sup>3</sup>Università del Piemonte Orientale, UPO, Italy; <sup>4</sup>Politecnico di Torino, PoliTO, Italy

11:05am - 11:20am

**Detection of induced chirality by surface-enhanced Raman optical activity**

**Debraj Gangopadhyay<sup>1</sup>, Moumita Das<sup>1,2</sup>, Jaroslav Šebestík<sup>1</sup>, Josef Kapitán<sup>3</sup>, Petr Bouř<sup>1,2</sup>**

<sup>1</sup>Institute of Organic Chemistry and Biochemistry, Academy of Sciences, Flemingovo náměstí 2, Prague 16610, Czech Republic; <sup>2</sup>Department of Analytical Chemistry, University of Chemistry and Technology, Technická 5, Prague 16628, Czech Republic; <sup>3</sup>Department of Optics, Palacký University Olomouc, 17. listopadu 12, Olomouc, 77146, Czech Republic

11:20am - 11:35am

**Development of a Versatile SERS Sensor using Tyramine-mediated Crosslinking Chemistry**

**Hyejin Chang<sup>1,2</sup>**

<sup>1</sup>Division of Science Education, Kangwon National University, Chuncheon 24341, Republic of Korea; <sup>2</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Republic of Korea

11:35am - 11:50am

**Tip-Enhanced Raman Spectroscopic Imaging of Phenyl and Benzynes on Cu(100)**

**Benjamin N. Taber<sup>1</sup>, Nuvraj K. Bilkhu<sup>2</sup>, V. Ara Apkarian<sup>1</sup>, Joonhee Lee<sup>1</sup>**

<sup>1</sup>University of Nevada, Reno, United States of America; <sup>2</sup>Department of Physics, University of Nevada

## TH-3: Fundamentals and Theory 3

Wednesday, August 17, 2022

10:00am - 11:50am

102B (144)

Session Chair: **Shaul Mukamel**

10:00am - 10:30am

**Computational resonant Raman spectroscopy of 2D materials: Exciton-phonon coupling and non-adiabatic effects**

**Ludger Wirtz, Sven Reichardt**

University of Luxembourg, Luxembourg

10:30am - 10:50am

**2D Impulsively Stimulated Resonant Raman Spectroscopy of Molecular Excited States**

**Giuseppe Fumero<sup>1,2</sup>, Christoph Schnedermann<sup>3,4</sup>, Giovanni Batignani<sup>1</sup>, Torsten Wende<sup>3</sup>, Matz Liebel<sup>3,5</sup>, Giovanni Bassolino<sup>3</sup>, Carino Ferrante<sup>1,6</sup>, Shaul Mukamel<sup>7</sup>, Philipp Kukura<sup>3</sup>, Tullio Scopigno<sup>1,6</sup>**

<sup>1</sup>Department of Physics, Sapienza University of Rome, Rome, Italy; <sup>2</sup>Department of Basic and Applied Sciences for Engineering, Sapienza University of Rome, Rome, Italy; <sup>3</sup>Physical and Theoretical Chemistry Laboratory, University of Oxford, Oxford, United Kingdom; <sup>4</sup>Cavendish Laboratory, University of Cambridge, United Kingdom; <sup>5</sup>ICFO - Institut de Ciències Fotoniques, Barcelona, Spain; <sup>6</sup>Istituto Italiano di Tecnologia, Center for Life Nano Science @Sapienza, Roma, Italy; <sup>7</sup>Department of Chemistry and Physics and Astronomy, University of California, Irvine, USA

10:50am - 11:05am

**Anti-Stokes Raman scattering and sound velocity of monolayer graphene**

**Xin Cong<sup>1</sup>, Ping-Heng Tan<sup>1</sup>, Pedro Venezuela<sup>2</sup>**

<sup>1</sup>Institute of Semiconductors, Chinese Academy of Sciences, People's Republic of China; <sup>2</sup>Instituto de Física, Universidade Federal Fluminense, Niterói, Brazil

11:05am - 11:20am

**Moiré phonons in twisted bilayer MoS<sub>2</sub>**

**Miao-Ling Lin, Qing-Hai Tan, Ping-Heng Tan**

State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

11:20am - 11:35am

**The Raman to rationalize the electrochemical mechanisms of the positive electrodes of Li-ion batteries**

**Mouna Ben Yahia**

ICGM-University of Montpellier, France

(08/26/22)

# THURSDAY ORAL PRESENTATIONS

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## PLN 6: Plenary 6

Thursday, August 18, 2022  
8:45am - 9:30am  
Ballroom 104 PLENARY (1120)  
Session Chair: **Tullio Scopigno**

8:45am - 9:30am

**Making Raman spectroscopy ultrafast**

**Philipp Kukura**

University of Oxford, United Kingdom

## NEWT-7: New Techniques 7

Thursday, August 18, 2022  
10:00am - 11:50am  
102A (156)  
Session Chair: **Eric Olaf Potma**

10:00am - 10:20am

**Timing is Everything: A Quest for More Information from Coherent Raman Spectroscopy and Imaging**

**Vladislav V Yakovlev**

Texas A&M University, United States of America

10:20am - 10:40am

**Probing Spectral Fluctuations and SERS Imaging at High Speed**

**Alexandre Brolo<sup>1</sup>, Nathan Lindquist<sup>2</sup>**

<sup>1</sup>University of Victoria, Canada; <sup>2</sup>Bethel University

10:40am - 10:55am

**Simplified FM CARS and FM SRS with up to 18-fold contrast improvement**

**Kristin Wallmeier<sup>1</sup>, Thomas Würthwein<sup>1</sup>, Tim Hellwig<sup>2</sup>, Max Brinkmann<sup>2</sup>, Nick Lemberger<sup>1</sup>, Carsten Fallnich<sup>1,3</sup>**

<sup>1</sup>University of Münster, Münster, Germany; <sup>2</sup>Refined Laser Systems GmbH, Münster, Germany; <sup>3</sup>Cells in Motion Interfaculty Centre, University of Münster, Münster, Germany

10:55am - 11:10am

**Using a flight-like Raman spectrometer to identify redox couples: a potential energy source for life.**

**Melissa McHugh, Ian Hutchinson, Hannah Lerman**

University of Leicester, United Kingdom

11:10am - 11:25am

**Unsupervised Raman spectroscopy imaging of bio-interfaces in analogue samples in preparation for space missions**

**Cedric MALHERBE<sup>1</sup>, Lucas DEMARET<sup>1</sup>, Ian B. HUTCHINSON<sup>2</sup>, Gauthier EPPE<sup>1</sup>**

<sup>1</sup>University of Liège, Belgium; <sup>2</sup>University of Leicester, United Kingdom

## NLTR-5: Non-linear and Time Resolved 5

Thursday, August 18, 2022  
10:00am - 11:50am  
103A (144)

Session Chair: **Christopher G. Elles**

10:00am - 10:20am

**Dependence of Vibrational Energy Transfer on Distance in a Four-helix Bundle Protein**

**Yasuhisa Mizutani**

Osaka University, Japan

10:20am - 10:35am

**Removing Non-Resonant Background from CARS spectra via Deep Learning**

**Carlo Michele Valensise<sup>1</sup>, Alessandro Giuseppe<sup>2</sup>, Federico Vernuccio<sup>1</sup>, Alejandro De la Cadena<sup>1</sup>, Giulio Cerullo<sup>1</sup>, Dario Polli<sup>1</sup>**

<sup>1</sup>Physics Department, Politecnico di Milano, Italy; <sup>2</sup>DIAG, University of Rome "La Sapienza"

10:35am - 10:50am

**High-speed fingerprint broadband CARS with supercontinuum generation in bulk media and deep learning spectral denoising**

**Federico Vernuccio<sup>1</sup>, Arianna Bresci<sup>1</sup>, Alejandro De la Cadena<sup>1</sup>, Benedetta Talone<sup>1</sup>, Chiara Ceconello<sup>1</sup>, Francesco Manetti<sup>1</sup>, Renzo Vanna<sup>2</sup>, Giulio Cerullo<sup>1,2</sup>, Dario Polli<sup>1,2</sup>**

<sup>1</sup>Department of Physics, Politecnico di Milano, P.zza Leonardo da Vinci 32, 20133 Milan, Italy; <sup>2</sup>CNR-Institute for Photonics and Nanotechnologies (IFN-CNR), P.zza Leonardo Da Vinci 32, 20133 Milan, Italy

10:50am - 11:05am

**Nanoscale coherent Raman detection via the local field enhancement at a single plasmonic nanorod**

**Martina Elisena Recchia<sup>1</sup>, Dafydd Sion Harlow<sup>1</sup>, Wolfgang Langbein<sup>2</sup>, Paola Borri<sup>1</sup>**

<sup>1</sup>Cardiff University School of Biosciences, Museum Avenue, Cardiff CF10 3AX, United Kingdom; <sup>2</sup>Cardiff University School of Physics and Astronomy, The Parade, Cardiff CF24 3AA, United Kingdom.



(08/26/22)

11:05am - 11:20am

**Broadband Hadamard spectral acquisition for a high speed and high spectral resolution Stimulated Raman Microscope**

Luca Genchi, Andrea Bucci, Siarhei Laptanok, Carlo Liberale

Biological and Environmental Science and Engineering Division, King Abdullah University of Science and Technology, Saudi Arabia

11:20am - 11:35am

**Assessment of formulated product performance with stimulated Raman scattering microscopy**

Natalie Anne Belsey<sup>1</sup>, Dimitrios Tsikritsis<sup>1</sup>, Richard Guy<sup>2</sup>

<sup>1</sup>National Physical Laboratory, United Kingdom; <sup>2</sup>University of Bath, United Kingdom

11:35am - 11:50am

**Towards excited state Raman scattering studies of single-molecules**

Jana Ockova

The Institute of Photonic Sciences in Barcelona (ICFO), Spain

## SERS-7: Sers/Ters: Applications to Biological Systems 7

Thursday, August 18, 2022

10:00am - 11:50am

101A (207)

Session Chair: Dana Ciialla-May

10:00am - 10:20am

**Bringing SERS to the Clinic: A Nanomaterials Chemistry Approach to Plasmonics (Prerecorded talk)**

Supriya Atta<sup>1</sup>, Manjari Bhamidipati<sup>1</sup>, Kholud Dardir<sup>1</sup>, Ted V. Tsoulos<sup>2</sup>, Hao Wang<sup>1</sup>, Zhaolin Xue<sup>1</sup>, Laura Fabris<sup>1</sup>

<sup>1</sup>Rutgers University, United States of America; <sup>2</sup>École Polytechnique Fédérale de Lausanne

10:20am - 10:35am

**Raman fingerprint as biomarker for the diagnosis of neurodegenerative diseases**

Cristiano Carlomagno, Alice Gualerzi, Silvia Picciolini, Marzia Bedoni

Fondazione Don Gnocchi, Italy

10:35am - 10:50am

**Nanostars – decorated microfluidic devices for SERS targeting of biomolecules in liquid samples**

Caterina Dallari<sup>1</sup>, Caterina Credi<sup>1,2</sup>, Elena Lenci<sup>3</sup>, Andrea Trabocchi<sup>3</sup>, Riccardo Cicchi<sup>1,4</sup>, Francesco Saverio Pavone<sup>1,4,5</sup>

<sup>1</sup>European Laboratory for Non Linear Spectroscopy (LENS); <sup>2</sup>Department of Industrial Engineering, University of Florence; <sup>3</sup>Department of Chemistry, University of Florence; <sup>4</sup>National Institute of Optics, National Research Council (INO-CNR); <sup>5</sup>Department of Physics, University of Florence

10:50am - 11:05am

**Spatial Separation of Plasmonic Hot Electron Generation and a Hydrodehalogenation Reaction Center using a DNA Wire**

Sergio Kogikoski Junior, Anushree Dutta, Ilko Bald  
University of Potsdam, Germany

11:05am - 11:20am

**Characterisation of the Cyanate Inhibited State of Cytochrome c Oxidase with surface-enhanced resonance Raman spectroscopy (SERRS)**

Fabian Kruse<sup>1</sup>, Inez Weidinger<sup>1</sup>, Anh Duc Nguyen<sup>2</sup>, Jovan Dragelj<sup>2</sup>, Maria Andrea Mroginski<sup>2</sup>, Joachim Heberle<sup>3</sup>, Ramona Schlesinger<sup>3</sup>

<sup>1</sup>Technische Universität Dresden, Institute of Chemistry, Germany; <sup>2</sup>Technische Universität Berlin, Department of Chemistry, Germany; <sup>3</sup>Freie Universität Berlin, Department of Physics, Germany

## SERS-8: Sers/Ters: Applications to Material Science 8

Thursday, August 18, 2022

10:00am - 11:50am

101B (207)

Session Chair: Olga Eremina

10:00am - 10:15am

**SPPs controlling and plasmonic catalysis on nanomaterials**

Zhenglong Zhang, Hairong Zheng

Shaanxi Normal University, China, People's Republic of

10:15am - 10:30am

**Tip-enhanced Raman Spectroscopy Protocol for Nanoscale Chemical Imaging of Commercial Functionalized Few-layer Graphene**

Naresh Kumar<sup>1</sup>, Barry Brennan<sup>1</sup>, Bert Weckhuysen<sup>2</sup>, Thomas Howe<sup>3</sup>, Lee Edwards<sup>3</sup>, Andrew Wain<sup>1</sup>, Andrew Pollard<sup>1</sup>

<sup>1</sup>National Physical Laboratory, Hampton Road, TW11 0LW Teddington, United Kingdom; <sup>2</sup>Utrecht University, Universiteitsweg 99, 3584 CG Utrecht, the Netherlands; <sup>3</sup>Haydale Limited, Clos Fferws, Parc Hendre, SA18 3BL Ammanford, United Kingdom

10:30am - 10:45am

**Study of chemical enhancement mechanism in various semiconductor substrates based Surface enhanced Raman spectroscopy (SERS)**

Javeong Kim<sup>1</sup>, Yujin Jang<sup>1</sup>, Suyeun Baek<sup>1</sup>, Eunji Ko<sup>1</sup>, Nam-Jung Kim<sup>2</sup>, Heehun Kim<sup>2</sup>, Gyu-Chul Yi<sup>2</sup>, Po-Cheng Tsai<sup>3</sup>, Shih-Yen Lin<sup>3</sup>, Yukyung Shin<sup>4</sup>, Myung Hwa Kim<sup>4</sup>, Seokhyun Yoon<sup>1</sup>

<sup>1</sup>Department of Physics, Ewha womans university, Seoul, Republic of (South Korea); <sup>2</sup>Department of Physics and Astronomy, Seoul National University, Seoul, Korea; <sup>3</sup>Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan; <sup>4</sup>Department of Chemistry and Nanoscience, Ewha Womans University, Republic of Korea

(08/26/22)

10:45am - 11:00am

**ULF TERS imaging –a novel technique for assessing the layer interaction in vertical heterostructures of 2D semiconductors.**

**Alvaro Rodriguez<sup>1</sup>, Andrey Kravev<sup>2</sup>, Matěj Velický<sup>1</sup>, Peng Chen<sup>3</sup>, Xiangfeng Duan<sup>4</sup>, Patrick El-Khoury<sup>5</sup>, Otakar Frank<sup>1</sup>**  
<sup>1</sup>J. Heyrovský Institute of Physical Chemistry, Czech Republic; <sup>2</sup>HORIBA Scientific, USA; <sup>3</sup>School of Microelectronics, Southern University of Science and Technology, China; <sup>4</sup>Department of Chemistry and Biochemistry and California NanoSystems Institute, University of California, Los Angeles, USA; <sup>5</sup>Physical Sciences Division Pacific Northwest National Laboratory, USA

11:00am - 11:15am

**Sub-diffraction nanoscale Raman imaging of the interface in a 2D semiconductor heterostructure**

**John Pierce Fix<sup>1</sup>, Sourav Garg<sup>2</sup>, Andrey Kravev<sup>3</sup>, Connor Flanery<sup>1</sup>, Michael Colgrove<sup>1</sup>, Audrey Sulkanen<sup>4</sup>, Minyuan Wang<sup>4</sup>, Gang-Yu Liu<sup>4</sup>, Patrick Kung<sup>2</sup>, Nicholas J Borys<sup>1</sup>**  
<sup>1</sup>Department of Physics, Montana State University, Bozeman Montana; <sup>2</sup>Department of Electrical and Computer Engineering, University of Alabama, Tuscaloosa Alabama; <sup>3</sup>HORIBA Scientific, Novato California; <sup>4</sup>Department of Chemistry, University of California Davis, Davis California

11:15am - 11:30am

**SERS spectroelectrochemical study of the first stages of electrochemical and chemical aniline oxidation at different pH**

**Zuzana Morávková, Ivana Šeděnková, Patrycja Bober**  
Institute of Macromolecular Chemistry, CAS, Czech Republic

## XRR-1: X Ray Raman 1

Thursday, August 18, 2022

10:00am - 11:50am

102B (144)

Session Chair: **Shaul Mukamel**

10:00am - 10:25am

**Probing elementary molecular events by stimulated X-ray Raman spectroscopy**

**Shaul Mukamel**  
University of California - Irvine, United States of America

10:25am – 10:50am

**X ray Raman FEL based opportunities**

**James Cryan**  
SLAC National Accelerator Laboratory, United States of America

10:50am - 11:15am

**A novel photo-induced lattice instability in SnSe observed by femtosecond x-ray scattering**

**Yijing Huang<sup>1</sup>, Shan Yang<sup>2</sup>, Samuel Teitelbaum<sup>1</sup>, Gilberto De la Peña<sup>1</sup>, Takahiro Sato<sup>1</sup>, Matthieu Chollet<sup>1</sup>, Diling Zhu<sup>1</sup>, Jennifer Niedziela<sup>2</sup>, Dipanshu Bansal<sup>2</sup>, Andrew May<sup>3</sup>, Aaron Lindenberg<sup>1</sup>, Olivier Delaire<sup>2</sup>, David Reis<sup>1</sup>, Mariano Trigo<sup>1</sup>**  
<sup>1</sup>Stanford University/SLAC National Accelerator Laboratory, United States of America; <sup>2</sup>Duke University, United States of America; <sup>3</sup>Oak Ridge National Laboratory, United States of America

## PD-3: Post Deadline 3

Thursday, August 18, 2022

2:30pm - 4:00pm

101A (207)

Session Chair: **Giuseppe Fumero**

2:30pm - 3:00pm

**Nonlocal Nonlinear Phononics**

**Meredith Henstridge<sup>1,2</sup>, Michael Först<sup>2</sup>, Edward Rowe<sup>2</sup>, Michael Fechner<sup>2</sup>, Andrea Cavalleri<sup>2,3</sup>**

<sup>1</sup>SLAC National Laboratory, Menlo Park, CA, United States of America; <sup>2</sup>Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; <sup>3</sup>Department of Physics, Clarendon Laboratory, University of Oxford, Oxford, United Kingdom

3:00pm - 3:30pm

**Picosecond energy transfer in a transition metal dichalcogenide–graphene heterostructure revealed by transient Raman spectroscopy**

**Carino Ferrante<sup>1,2,3,4</sup>, Giorgio Di Battista<sup>4,5,6</sup>, Luis E. Parra Lopez<sup>5</sup>, Giovanni Batignani<sup>3,4</sup>, Etienne Lorchat<sup>5</sup>, Alessandra Virga<sup>3,4</sup>, Stephane Berciaud<sup>5</sup>, Tullio Scopigno<sup>4,1,3</sup>**

<sup>1</sup>Graphene Labs, Istituto Italiano di Tecnologia, I-16163 Genova, Italy; <sup>2</sup>Innovative Nuclear Systems Laboratory, Fusion and Technology for Nuclear Safety and Security Department, “Italian National Agency for New Technologies, Energy and Sustainable Economic Development,” Casaccia, 00123 Roma, Italy; <sup>3</sup>Center for Life Nano Science @Sapienza, Istituto Italiano di Tecnologia, I-00161 Roma, Italy; <sup>4</sup>Dipartimento di Fisica, Università di Roma “La Sapienza,” 00185 Roma, Italy; <sup>5</sup>Institut de Physique et Chimie des Matériaux de Strasbourg, UMR 7504, Université de Strasbourg, CNRS, F-67000 Strasbourg, France; <sup>6</sup>Fakultät für Physik, Ludwig-Maximilians-Universität München, Geschwister-Scholl-Platz 1, 80539 München, Germany

3:30pm - 4:00pm

**Covariance-based stochastic Raman spectroscopy**

**Daniele Fausti**  
University of Trieste and University of Erlangen-Nuremberg, Italy

## PD-4: Post Deadline 4

Thursday, August 18, 2022

2:30pm - 4:00pm

101B (207)

Session Chair: **Richard Prince**

(08/26/22)

2:30pm - 3:00pm

### Gold nanomesh for wearable SERS

Kotaro Hiramatsu<sup>1</sup>, Limei Liu<sup>1,2</sup>, Pablo Martinez Pancorbo<sup>1</sup>, Ting-Hui Xiao<sup>1</sup>, Saya Noguchi<sup>1</sup>, Machiko Marumi<sup>1</sup>, Julia Gala de Pablo<sup>1</sup>, Siddhant Karhadkar<sup>1</sup>, Hiroki Segawa<sup>3</sup>, Yasutaka Kitahama<sup>1</sup>, Tamitake Itoh<sup>4</sup>, Junle Qu<sup>2</sup>, Kuniharu Takei<sup>5</sup>, Keisuke Goda<sup>1,6,7</sup>

<sup>1</sup>University of Tokyo, Japan; <sup>2</sup>Shenzhen University; <sup>3</sup>National Research Institute of Police Science; <sup>4</sup>National Institute of Advanced Industrial Science and Technology; <sup>5</sup>Osaka Metropolitan University; <sup>6</sup>Wuhan University; <sup>7</sup>University of California, Los Angeles

3:00pm - 3:30pm

### In vivo biomolecular imaging of zebrafish embryos using confocal Raman spectroscopy

Håkon Høegset<sup>1</sup>, Conor C. Horgan<sup>1</sup>, James P.K. Armstrong<sup>1</sup>, Mads S. Bergholt<sup>1</sup>, Vincenzo Torraca<sup>2</sup>, Qu Chen<sup>1</sup>, Timothy J. Keane<sup>1</sup>, Laurence Bugeon<sup>1</sup>, Margareth J. Dallman<sup>1</sup>, Serge Mostowy<sup>2</sup>, Molly M. Stevens<sup>1</sup>

<sup>1</sup>Imperial College London; <sup>2</sup>London School of Hygiene and Tropical Medicine

3:30pm - 4:00pm

### Quantification in Stimulated Raman scattering microscopy through water normalization

Dan Fu

University of Washington, United States of America

## BIO-7: Biology and Biomedicine 7

Thursday, August 18, 2022

4:30pm - 6:00pm

101B (207)

Session Chair: **Katarzyna Majzner**

4:30pm - 5:00pm

### Machine learning and chemometrics as tools for biomedical Raman data analysis

Thomas Wilhelm Bocklitz<sup>1,2</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology (Leibniz-IPHT), Member of Leibniz Health Technologies, Jena, Germany; <sup>2</sup>Institute of Physical Chemistry and Abbe Center of Photonics (IPC), Friedrich-Schiller-University

5:00pm - 5:15pm

### Visualizing cell wall dynamics during yeast sporulation process by Raman microspectroscopy and MCR-ALS technique

ohammad Imrul Hossain<sup>1</sup>, Hemanth Noothalapati<sup>2,3</sup>, Tatsuyuki Yamamoto<sup>1,2</sup>

<sup>1</sup>Faculty of Life and Environmental Science, Shimane University, Ma; <sup>2</sup>Raman project center for medical and biological applications, Shimane University, Matsue, Japan; <sup>3</sup>Research Administration office, Shimane University, Matsue, Japan

5:15pm - 5:30pm

### Raman spectroscopy and semi-supervised learning for the investigation of biochemical response in patients receiving HDR-brachytherapy

Kirsty Milligan<sup>1</sup>, Xincheng Deng<sup>1</sup>, Ramie Ali-Adeeb<sup>1</sup>, Phillip Shreeves<sup>2</sup>, Juanita M. Crook<sup>3</sup>, Alexandre G. Brolo<sup>4</sup>, Julian J. Lum<sup>5</sup>, Jeffrey L. Andrews<sup>2</sup>, Andrew Jirasek<sup>1</sup>

<sup>1</sup>Medical Physics, The University of British Columbia, Canada; <sup>2</sup>Department of Mathematics and Statistics, The University of British Columbia, Canada; <sup>3</sup>BC Cancer, Centre for the Southern Interior, Kelowna, Canada; <sup>4</sup>Department of Chemistry, The University of Victoria, Canada; <sup>5</sup>BC Cancer, Victoria, Canada

## MAT-6: Materials 6

Thursday, August 18, 2022

4:30pm - 6:00pm

102B (156)

Session Chair: **Antonio G Souza Filho**

4:30pm - 4:50pm

### Exciton-Phonon Coupling in CdSe Nanoplatelets from Resonance Raman Intensity Analysis

Anne Kelley

Univ of California - Merced, United States of America

4:50pm - 5:10pm

### Development of novel techniques for the analysis of microplastics using Raman imaging

Jovan Badzoka<sup>1</sup>, Martin Brunner<sup>1</sup>, Maria Moll<sup>2</sup>, Christian Huck<sup>1</sup>

<sup>1</sup>Leopold-Franzens University of Innsbruck, Austria; <sup>2</sup>Medical University of Innsbruck, Austria

5:10pm - 5:25pm

### Multi-Wavelength Raman Spectroscopy of Poly(Furfuryl Alcohol)

Francesco D'Amico<sup>2</sup>, Maurizio Ermanno Musso<sup>1</sup>, Raphael J.F. Berger<sup>1</sup>, Nicola Cefarin<sup>2</sup>, Durval Bertoldo Menezes<sup>3</sup>, Andreas Reyer<sup>1</sup>, Letizia Scarabattoli<sup>1,6</sup>, Thomas Sepperer<sup>4</sup>, Gianluca Tondi<sup>4,5</sup>, Thomas Schnabel<sup>4</sup>, Lisa Vaccari<sup>2</sup>

<sup>1</sup>University of Salzburg, Department of Chemistry and Physics of Materials, Salzburg, Austria; <sup>2</sup>Elettra-Sincrotrone Trieste S.C.p.A., Basovizza (TS), Italy; <sup>3</sup>Federal Institute of Triângulo Mineiro, Uberlândia, Minas Gerais, Brazil; <sup>4</sup>Salzburg University of Applied Sciences, Forest Products & Biogenic Technology, Kuchl, Austria; <sup>5</sup>Land, Environment, Agriculture and Forestry Department, University of Padova, Legnaro (PD), Italy; <sup>6</sup>Università degli Studi di Perugia, Department of Chemistry, Perugia, Italy

5:25pm - 5:40pm

### Renewable Hybrid Plasmonic Materials as Platforms for Chemical Reactions

Sivoney Ferreira de Souza

University of Potsdam, Germany

(08/26/22)

5:40pm - 5:55pm

**Vibrational and electronic properties of sp-carbon chains probed by synchrotron-based UV resonance Raman spectroscopy**

**Pietro Marabotti<sup>1</sup>, Matteo Tommasini<sup>2</sup>, Chiara Castiglioni<sup>2</sup>, Patrick Serafini<sup>1</sup>, Mariagrazia Tortora<sup>3</sup>, Barbara Rossi<sup>3</sup>, Sonia Peggiani<sup>1</sup>, Andrea Li Bassi<sup>1</sup>, Valeria Russo<sup>1</sup>, Carlo Spartaco Casari<sup>1</sup>**

<sup>1</sup>Micro and Nanostructured Materials Laboratory - NanoLab, Department of Energy, Politecnico di Milano via Ponzio 34/3, I-20133, Milano, Italy; <sup>2</sup>Department of Chemistry, Materials and Chem. Eng. 'G. Natta', Politecnico di Milano Piazza Leonardo da Vinci 32, I-20133, Milano, Italy; <sup>3</sup>Elettra Sincrotrone Trieste, S.S. 114 km 163.5, Basovizza, 34149 Trieste, Italy

**NLTR-6: Non-linear and Time Resolved 6**

Thursday, August 18, 2022

4:30pm - 6:00pm  
103A (144)

Session Chair: **Dongho Kim**

4:30pm - 5:00pm

**Ballistic of photoisomerization in 13-cis, 15-syn microbial rhodopsins: finally a predictive structure / photodynamic correlation?**

**Partha Malakar, Sanford Ruhman**

Hebrew University, Israel

5:00pm - 5:15pm

**Fluorescence-Encoded Time-Domain Coherent Raman Spectroscopy**

**Phillip Charles McCann<sup>1</sup>, Kotaro Hiramatsu<sup>1,2,3</sup>, Keisuke Goda<sup>1,4,5</sup>**

<sup>1</sup>Department of Chemistry, The University of Tokyo, Tokyo 113-0033, Japan; <sup>2</sup>Research Centre for Spectrochemistry, The University of Tokyo, Tokyo 113-0033, Japan; <sup>3</sup>PRESTO, Japan Science and Technology Agency, Saitama 332-0012, Japan; <sup>4</sup>Department of Bioengineering, University of California, Los Angeles, California 90095, USA; <sup>5</sup>Institute of Technological Sciences, Wuhan University, Hubei 430072, China

5:15pm - 5:30pm

**Ultrafast structural changes of large [Au(CN)<sub>2</sub>]-oligomers in triplet excited state observed by time-domain Raman spectroscopy**

**Li Liu<sup>1</sup>, Hikaru Kuramochi<sup>1,2,3</sup>, Munetaka Iwamura<sup>4</sup>, Koichi Nozaki<sup>4</sup>, Tahei Tahara<sup>1,2</sup>**

<sup>1</sup>Molecular Spectroscopy Laboratory, RIKEN, Japan; <sup>2</sup>Ultrafast Spectroscopy Research Team, RIKEN Center of Advanced Photonics (RAP), RIKEN; <sup>3</sup>Research Center of Integrative Molecular Systems, Institute for Molecular Science; <sup>4</sup>Graduate School of Science and Engineering, University of Toyama

**R-Quiz: Raman Quiz**

Thursday, August 18, 2022

5:15pm - 5:45pm  
101A (207)

Session Chair: **Sebastian Schlucker**

**FRIDAY ORAL PRESENTATIONS**

**BIO-8: Biology and Biomedicine 8**

Friday, August 19, 2022

8:45am - 10:35am  
101B (207)

Session Chair: **Judy Kim**

8:45am - 9:05am

**785 nm SERS of metalloporphyrins: Chemical enhancement, Herzberg-Teller coupling and forensics**  
**Harrison Ingraham<sup>1,2</sup>, Ranjith Premasiri<sup>1,2</sup>, James McNeeley<sup>1,2</sup>, Lawrence Ziegler<sup>1,2</sup>**

<sup>1</sup>Boston University, United States of America; <sup>2</sup>Photonics Center, Boston University

9:05am - 9:20am

**Raman Metrology for Live Cell Imaging**

**Caitlin Thomson<sup>1,2</sup>, Dimitrios Tsikritsis<sup>2</sup>, Duncan Graham<sup>1</sup>, Natalie Belsey<sup>2</sup>**

<sup>1</sup>University of Strathclyde, United Kingdom; <sup>2</sup>National Physical Laboratory, United Kingdom

9:20am - 9:35am

**Raman Microscopy of Microalgae: New Challenges and Opportunities in the World of Photosynthetic Microorganisms**

**Peter Mojžeš<sup>1,3</sup>, Šárka Moudříková<sup>1</sup>, Jana Pilátová<sup>2</sup>, Lu Gao<sup>3</sup>, Ladislav Nedbal<sup>3</sup>, Kateřina Bišová<sup>4</sup>, Alexei Solovchenko<sup>5</sup>**

<sup>1</sup>Charles University, Faculty of Mathematics and Physics, Czech Republic; <sup>2</sup>Charles University, Faculty of Science, Czech Republic; <sup>3</sup>Forschungszentrum Jülich, Germany; <sup>4</sup>Centre Algatech, Institute of Microbiology, Czech Republic; <sup>5</sup>Moscow State University, Faculty of Biology, Russia

9:35am - 9:50am

**Detection of Diseases Using SERS: Coupling of Magnetic Concentration and Principal Component Analysis for Zika Virus Detection**

**Raisa Lacerda Silveira<sup>1</sup>, Sergio Hiroshi Toma<sup>1</sup>, Koiti Araki<sup>1</sup>, Alexandre Guimaraes Brolo<sup>2</sup>, Paola Corio<sup>1</sup>, Jonnatan Julival Santos<sup>1</sup>**

<sup>1</sup>University of Sao Paulo, Brazil; <sup>2</sup>University of Victoria

(08/26/22)

9:50am - 10:05am

**Hydration Water Character on Atomically Dislocated Surfaces Revealed by Surface Enhanced Raman Spectroscopy**

**dongha shin**

Inha University, Korea, Republic of (South Korea)

**NEWT-9: New Techniques 9**

Friday, August 19, 2022

8:45am - 10:35am

102A (156)

Session Chair: **Khanh Kieu**

8:45am - 9:15am

**Surface enhanced coherent Raman scattering: blessing or curse?**

**Eric Olaf Potma**

University of California, Irvine, United States of America

9:15am - 9:30am

**Research progress of trace uranyl ions detection by SERS-based microfluidic devices**

**XUAN HE, YU LIU, XIAOLIN WANG**

China Academy of Engineering Physics, Mianyang 621900, China, China, People's Republic of

9:30am - 9:45am

**A study on the effect of functional groups of NIR Raman reporter dyes in quantitative analysis by NIR-SERRS-based LFA**

**Namhyun Choi, Mujo Adanalic, Asen Dankov, Roland Grzeschik, Sebastian Schlücker**

Department of Chemistry and Center for Nanointegration Duisburg-Essen (CENIDE), University of Duisburg-Essen, Germany

9:45am - 10:00am

**N-acetyl- $\beta$ -D-glucosaminidase activity assay for monitoring insulin-dependent diabetes using Ag-porous Si SERS substrates**

**Narsingh Nirala, Giorgi Shtenberg**

Institute of Agricultural Engineering, Agricultural Research Organization, Volcani Institute, Rishon LeZion, Israel

10:00am - 10:15am

**Miniaturized dual laser Raman spectrometer with real-time spectral and intensity calibration for in-vivo skin diagnostics**

**Yurii Pilhun<sup>1,2</sup>, Oleksii Ilchenko<sup>1,3</sup>, Andrii Kutsyk<sup>1,2,4</sup>**

<sup>1</sup>Lightnovo ApS, Denmark; <sup>2</sup>Taras Shevchenko National University of Kyiv, Faculty of Radio Physics, Electronics and Computer Systems, Ukraine; <sup>3</sup>Technical University of Denmark, Department of Health Technology, Denmark; <sup>4</sup>Technical University of Denmark, Department of Energy Conversion and Storage, Denmark

**NLTR-7: Non-linear and Time Resolved 7**

Friday, August 19, 2022

8:45am - 10:35am

103A (144)

Session Chair: **Philipp Kukura**

8:45am - 9:05am

**Single-shot femtosecond stimulated Raman histology of gastroscopic biopsy**

**Zhijie Liu, Jianpeng Ao, Minbiao Ji**

Fudan University, China, People's Republic of

9:05am - 9:20am

**Coherent Anti-Stokes Raman Scattering-Raman Optical Activity Spectroscopy of a Chiral Organocatalyst in Achiral Solvents**

**VIKAS KUMAR<sup>1</sup>, Till Reichenauer<sup>1</sup>, Dennis Jansen<sup>2</sup>, Jochen Niemeyer<sup>2</sup>, Sebastian Schluecker<sup>1</sup>**

<sup>1</sup>Department of Chemistry (Physical Chemistry), Center for Nanointegration Duisburg-Essen (CENIDE) University of Duisburg-Essen, Essen, Germany; <sup>2</sup>Department of Chemistry (Organic Chemistry), Center for Nanointegration Duisburg-Essen (CENIDE) University of Duisburg-Essen, Essen, Germany

9:20am - 9:35am

**BCARS down to the nanometer length scale**

**Franz Hempel<sup>1</sup>, Federico Vernuccio<sup>2</sup>, Michael Rüsing<sup>1</sup>, Giulio Cerullo<sup>2</sup>, Dario Polli<sup>2</sup>, Lukas M. Eng<sup>1,3</sup>**

<sup>1</sup>Institut für Angewandte Physik, Technische Universität Dresden, 01062 Dresden, Germany; <sup>2</sup>Dipartimento di Fisica, Politecnico Milano, 20133 Milano, Italy; <sup>3</sup>ct.qmat: Dresden-Würzburg Cluster of Excellence—EXC 2147, TU Dresden, 01062 Dresden

9:35am - 9:50am

**Random Illumination Wide-field Coherent Anti-Stokes Raman Scattering Microscopy**

**Eric Michele Fantuzzi<sup>1</sup>, Sandro Heuke<sup>1</sup>, Dominykas Gudavičius<sup>2,3</sup>, Randy Bartels<sup>4</sup>, Karolis Neimontas<sup>2</sup>, Anne Sentenac<sup>1</sup>, Hervé Rigneault<sup>1</sup>**

<sup>1</sup>Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, Marseille, France; <sup>2</sup>Light Conversion, Keramiku st.2B LT-10233 Vilnius, Lithuania; <sup>3</sup>Cardiff University, School of Physics and Astronomy, The Parade, Cardiff CF24 3AA, United Kingdom; <sup>4</sup>Colorado State University, Fort Collins, USA

9:50am - 10:05am

**Vibrational tags for Raman and infrared-based imaging**

**Yong Li, Katherine Townsend, Robert Dorn, Jennifer Prescher, Eric Potma**

Department of Chemistry, University of California, Irvine

(08/26/22)

10:05am - 10:20am

**Super-multiplex flow cytometry by cyanine-based Raman tags**

Ryo Nishiyama<sup>1</sup>, Kotaro Hiramatsu<sup>1</sup>, Shintaro Kawamura<sup>2</sup>, Kosuke Dodo<sup>2</sup>, Wei Min<sup>3</sup>, Mikiko Sodeoka<sup>2</sup>, Keisuke Goda<sup>1</sup>

<sup>1</sup>Department of Chemistry, The University of Tokyo, Tokyo, Japan.; <sup>2</sup>RIKEN Cluster for Pioneering Research, Saitama, Japan.; <sup>3</sup>Department of Chemistry, Columbia University, New York, USA.

10:20am - 10:35am

**Robust, high speed low frequency coherent Raman microscopy**

Randy Bartels<sup>1</sup>, David Smith<sup>1</sup>, Siddarth Shivkumar<sup>2</sup>, Hervé Rigneault<sup>2</sup>

<sup>1</sup>Colorado State University, United States of America; <sup>2</sup>Fresnel Institute, Marseille, France

## SERS-10: Sers/Ters 10

Friday, August 19, 2022

8:45am - 10:35am

101A (207)

Session Chair: **Alexandre Brolo**

8:45am - 9:15am

**Plasmonic core-shell nanostructures for in-situ probing surface reactions**

Jin-Chao Dong, Hua Zhang, Jian-Feng Li

Xiamen University, China

9:15am - 9:30am

**Molecular platform for frequency upconversion at the single-photon level**

Philippe Roelli<sup>1</sup>, Wen Chen<sup>2</sup>, Huatian Hu<sup>3</sup>, Diego Martin-Cano<sup>4</sup>, Tobias J. Kippenberg<sup>2</sup>, Christophe Galland<sup>2</sup>

<sup>1</sup>Nano-optics Group, CIC nanoGUNE, Spain; <sup>2</sup>EPFL, Institute of Physics, Switzerland; <sup>3</sup>Wuhan Institute of Technology, China; <sup>4</sup>Universidad Autónoma de Madrid, Spain

9:30am - 9:45am

**New approaches in preparation of metallic nanostructures for SERS by means of low-pressure plasma**

Marek Prochazka, Anna Kuzminova, Ondrej Kylian

Charles University, Czech Republic

9:45am - 10:00am

**Integrating Sphere Measurements for Paper SERS Sensors**

Li-Lin Tay, Shawn Poirier, Ali Ghaemi, John Hulse

National Research Council Canada

10:00am - 10:15am

**Multiplexed Spatial Profiling of Cancer Enabled by SERS Nanoparticles**

Olga Eremina<sup>1,2</sup>, Alexander Czaja<sup>1,2</sup>, Augusta Fernando<sup>1,2</sup>, Cristina Zavaleta<sup>1,2</sup>

<sup>1</sup>Department of Biomedical Engineering, University of Southern California, 3650 McClintock Ave, Los Angeles, CA 90089, United States; <sup>2</sup>Michelson Center for Convergent Bioscience, University of Southern California, 1002 Childs Way, Los Angeles, CA 90089, United States

## PLN 7: Plenary 7

Friday, August 19, 2022

11:05am - 11:50am

Ballroom 104 PLENARY (1120)

Session Chair: **Wolfgang Kiefer**

11:05am - 11:50am

**Stimulated Raman Scattering Imaging: the Next Frontier of Light Microscopy**

Wei Min

Columbia University, United States of America

## Closing Ceremony and Poster Winner Announcements

Friday: 11:50 am - 12:30 pm - Ballroom 10

(08/26/22)

# TUESDAY POSTER PRESENTATIONS

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## Poster TUE-A: Poster Session Tuesday Afternoon

Tuesday, August 16, 2022  
11:50am - 2:25pm

### Probing Zeolite H-ZSM-5 Deactivation using Correlative Hyperspectral Confocal Raman, Fluorescence and Tip-enhanced Fluorescence Spectroscopies

Siiri Bienz<sup>1</sup>, Sophie van Vreeswijk<sup>2</sup>, Naresh Kumar<sup>1</sup>, Bert Weckhuysen<sup>2</sup>, Renato Zenobi<sup>1</sup>

<sup>1</sup>ETH Zurich, Switzerland; <sup>2</sup>Utrecht University, Netherlands

### Characterization of the cathode material of lithium-ion batteries by Raman spectroscopy

Sergey Mamedov, Michelle Nicole Sestak

HORIBA Scientific, United States of America

### Characterising Graphene and 2D Materials by Confocal Raman and Photoluminescence Microscopy

Angela Flack

Edinburgh Instruments, United Kingdom

### Circular polarization effects on diesel Raman spectra

J. D. Berrones-Guerrero, C. Frausto-Reyes, M. Ortiz-Morales, M. H. De la Torre

Centro de Investigaciones en Optica, A.C., Mexico

### Use of complementary techniques for depth profiling of mobile screen protection covers

Bernd Bleisteiner<sup>1</sup>, Sofia Gaiaschi<sup>2</sup>, Thibault Brulé<sup>2</sup>

<sup>1</sup>HORIBA Jobin Yvon GmbH, Germany; <sup>2</sup>HORIBA France SAS, France;

### AFM-TERS measurements in liquid environment with side illumination/collection

Patrick Hsia<sup>1</sup>, Pierre Burgos<sup>2</sup>, Marc Chaigneau<sup>1</sup>

<sup>1</sup>Horiba France SAS, France; <sup>2</sup>Horiba UK Ltd., UK

### Cavity Enhanced Transmission Raman for Content Uniformity Analysis of Low Dosage Pharmaceutical Tablets

Jun Zhao, Christopher Kautz

B&W Tek, United States of America

### Development of a new unique concept for accurate sample measurement across different microscope based molecular spectroscopy system

Kohei TAMURA<sup>1</sup>, Carlos MORILLO<sup>2</sup>, Yuji HIGUCHI<sup>1</sup>, Erika TAIRA<sup>1</sup>, Kento AIZAWA<sup>1</sup>, Satoko SUZUKI<sup>1</sup>, Ken-ichi AKAO<sup>1</sup>

<sup>1</sup>JASCO Corporation, Japan; <sup>2</sup>JASCO Incorporated

### Graphene and Phthalocyanine Heterostructures for Surface Enhanced Raman Spectroscopy

Angela Luis Matos, Soraya Y. Flores Chalco, Muhammad Shehzad Sultan, Brad Weiner, Gerardo Morell

University of Puerto Rico Rio Piedras, Puerto Rico (U.S.)

### Study of SERS of pharmaceutically significant organic molecule 4, 5-Dicianoimidazole adsorbed on Au nanocolloids: Theoretical modelling using DFT

Subhendu Chandra

Victoria Institution (College), India

### TERS Investigation of Combustion-generated Ultrafine Particulate Matter

Ophélie Lancry<sup>1</sup>, Jennifer A. Noble<sup>2</sup>, Sébastien Legendre<sup>1</sup>, Marc Chaigneau<sup>1</sup>

<sup>1</sup>Horiba, France; <sup>2</sup>PIIM, Aix-Marseille Université, France

### Confocal Raman Particle Analysis on the Micron Scale Applied to Microplastics, Bacteria and 2D Materials

Thomas Dieing, Miriam Böhmler, Harald Fischer, Matthias Finger, Olaf Hollricher

WITec GmbH, Germany

### De-noising and differentiation of low-SNR Raman-spectra of EV's

Mathias Novik Jensen, Benjamin Ricaud, Olav Gaute Hellesø

Dept. of physics and technology, UiT The arctic university of Norway, Norway

### Optimizing SERS Structures beyond the monochromatic E4-Model

Henriette Maaß<sup>1,2</sup>, Thien Anh Le<sup>1,2</sup>, Enno Schatz<sup>1,2</sup>, Thorsten Feichtner<sup>1</sup>, Bert Hecht<sup>1</sup>

<sup>1</sup>NanoOptics & Biophotonics group, Experimental Physics 5, University of Wuerzburg, Germany; <sup>2</sup>NanoStruct GmbH, Wuerzburg, Germany

### Multi-technique assessment of the SERS adsorption isotherm approximation

Evandro Ivanov, Paola Corio

University of São Paulo, Brazil;

### SmartSampling™: a revolution in Raman imaging

Thibault Brulé, Sébastien Laden, Ludivine Fromentoux, Jérémy Brites

HORIBA France SAS, France

(08/26/22)

**Deep Ultra-Violet Raman Spectroscopy for Eyesafe Standoff Chemical Threat Detection**

Shayne Harrel, Adam Wise, Jenny Goulden  
Andor Technologies, Belfast, UK

**Raman spectroscopy evaluation of indomethacin stability loaded into microcontainers – influence of shape and size**

Chiara Mazzoni, Roman Slipets, Oleksii Ilchenko, Lasse Højlund Eklund Thamdrup, Line Hagner Nielsen, Anja Boisen

The Danish National Research Foundation and Villum Foundation's Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics (IDUN), Department of Health Technology, Technical University of Denmark

**The impact of graphene derivatives additives on polymer membranes analysed by Raman microspectroscopy**

Aleksandra Weselucha-Birczynska<sup>1</sup>, Anna Kolodziej<sup>1</sup>, Emilie Gérardouille<sup>1</sup>, Malgorzata Świętek<sup>2</sup>, Elżbieta Długon<sup>3</sup>, Marta Błażewicz<sup>2</sup>

<sup>1</sup>Jagiellonian University, Poland; <sup>2</sup>Czech Academy of Sciences, Czech Republic; <sup>3</sup>AGH - University of Science and Technology, Poland

**Rapid Detection of Ciprofloxacin in Milk by a Hand-held Raman Spectrometer**

Jing Miao<sup>1</sup>, Xingyu Si<sup>2</sup>

<sup>1</sup>The King's School, Canterbury, United States of America; <sup>2</sup>JINSP Company Limited, China, People's Republic of

**Raman Spectroscopic Study in Identifying Carotenoids upon Illumination of Light during Carrot growth stages**

Pooja Manik Badgujar, Yu Chun Wang, Chia-Liang Cheng  
National Dong Hwa Univeristy, Taiwan

**Surface-Enhanced Raman Spectroscopy-Based Detection of SARS-CoV-2 Through In Situ One-pot Electrochemical Synthesis of 3D Au-Lysate Nanocomposite Structures on Plasmonic Electrodes**

Iris Baffour Ansah<sup>1,2</sup>, Dong-Ho Kim<sup>1,2</sup>, Sung-Gyu Park<sup>1</sup>

<sup>1</sup>University of Science and Technology, Korea, Korea, Republic of (South Korea); <sup>2</sup>Korea Institute of Material Science

**Simultaneous Raman and Infrared testing for better microplastic identification**

Jay Anderson, Mustafa Kansiz, Christoph Krafft

Photothermal Spectroscopy Corp, United States of America

**Raman Analyses of Planetary Analogue Materials in Preparation for Future Exploration Missions**

Ian Hutchinson

University of Leicester, United Kingdom

**RamAIn: Automatic Analysis of Microscopic Raman Spectral Maps**

Jana Pilátová<sup>1,2</sup>, Filip Peška<sup>1</sup>, Martin Pilát<sup>1</sup>, Peter Mojžeš<sup>1</sup>

<sup>1</sup>Faculty of Mathematics and Physics, Charles University, Ke Karlovu 5, CZ-12116 Prague 2, Czech Republic; <sup>2</sup>Faculty of Science, Charles University, Viničná 5, CZ-12844 Prague 2, Czech Republic

**Raman Spectroscopy in Extreme Environments**

Hannah N Lerman, Ian B Hutchinson, Melissa McHugh

University of Leicester, United Kingdom

**The SERS effect of uranyl ions on the Ag substrate and its application in the trace analysis of uranyl ions**

Shaofei Wang

China Academy of Engineering Physics, China, People's Republic of

**Simultaneous Raman and Optical Photothermal Infrared Spectroscopy of Bioplastics at Submicron Spatial Resolution**

Curtis Marcott<sup>1,2</sup>, Isao Noda<sup>1,3</sup>

<sup>1</sup>University of Delaware, United States of America; <sup>2</sup>Light Ligh Solutions, United States of America; <sup>3</sup>Danimer Scientific, United States of America

**Calcite - aragonite alternating layers in recent mineral spring pisoliths from Corund, Romania**

Zoltan Ferenc Pal, Tudor Tamas, Simona Cinta Pinzaru

Babes-Bolyai University, Romania

**Application of Raman spectroscopy in studies on mechanisms of phase transitions in lead halide hybrid perovskitoids templated by hydrazinium derivatives**

Jan Albert Zienkiewicz<sup>1</sup>, Karolina Kaldunská<sup>2</sup>, Katarzyna Fedoruk<sup>3</sup>, Tadeusz Muziol<sup>2</sup>, Maciej Ptak<sup>1</sup>

<sup>1</sup>Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland; <sup>2</sup>Faculty of Chemistry, Nicolaus Copernicus University in Torun, Torun, Poland; <sup>3</sup>Institute of Physics, Wroclaw University of Science and Technology, Wroclaw, Poland

**Detecting Hydrogen Passing Through Graphene by Surface-Enhanced Raman Spectroscopy of 4-Nitrothiophenol**

Younghyun Wy, Sang Woo Han

KAIST, Korea, Republic of (South Korea)

**Development of dual SERS substrates using silver nanoshells and two kinds of graphene quantum dots**

Han Yeong Lee<sup>1</sup>, Hyejin Chang<sup>1,2</sup>

<sup>1</sup>Division of Science Education, Kangwon National University, Republic of Korea; <sup>2</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Republic of Korea



(08/26/22)

### **Development of a new Raman measurement system for in situ measurements during high temperature microwave synthesis of inorganic materials**

**John Jamboretz<sup>1</sup>, Andreas Reitz<sup>1</sup>, Christina Birkel<sup>1,2</sup>**

<sup>1</sup>Arizona State University, United States of America; <sup>2</sup>Department of Chemistry and Biochemistry, Technische Universitaet Darmstadt

### **Limitations in the detection of Cancerous Human Colorectal Tissues by micro-Raman Spectroscopy**

**Maria Karnachoriti<sup>1,2</sup>, Ioannis Stathopoulos<sup>3</sup>, Maria Anthi Kouri<sup>3,4</sup>, Ellas Spyratou<sup>2,3</sup>, Nikolaos Danias<sup>3</sup>, Nikolaos Arkadopoulos<sup>3</sup>, Marianthi Panagopoulou<sup>1</sup>, Stavros Venetis<sup>5</sup>, Efstathios P. Efstathopoulos<sup>3</sup>, Yannis S. Raptis<sup>1</sup>, Ioannis Seimenis<sup>3</sup>, Athanassios G. Kontos<sup>1</sup>**

<sup>1</sup>National Technical University of Athens, Greece; <sup>2</sup>Democritus University of Thrace; <sup>3</sup>National & Kapodistrian University of Athens; <sup>4</sup>University of Massachusetts Lowell; <sup>5</sup>Alpha Information Technology S.A., Software & System Development

### **Raman study of undoped and Si-doped orthorhombic κ-Ga<sub>2</sub>O<sub>3</sub> thin-films**

**Giulia Spaggiari<sup>1,2</sup>, Piero Mazzolini<sup>1,2</sup>, Anna Sacchi<sup>2</sup>, Danilo Bersani<sup>2</sup>, Antonella Parisini<sup>2</sup>, Francesco Mezzadri<sup>3</sup>, Marcella N. Marggraf<sup>4</sup>, Markus R. Wagner<sup>4</sup>, Zsolt Fogarassy<sup>5</sup>, Ildikó Cora<sup>5</sup>, Béla Pécz<sup>5</sup>, Luca Seravalli<sup>1</sup>, Matteo Bosi<sup>1</sup>, Roberto Fornari<sup>1,2</sup>**

<sup>1</sup>Dept. of Mathematical, Physical and Computer Sciences, University of Parma, Parma (Italy); <sup>2</sup>Institute of Materials for Electronics and Magnetism (IMEM), CNR, Parma (Italy); <sup>3</sup>Dept. of Chemistry, Life Sciences and Environmental Sustainability, University of Parma, Parma (Italy); <sup>4</sup>Technische Universität Berlin, Institute of Solid State Physics, Berlin (Germany); <sup>5</sup>Centre for Energy Research, Hungarian Academy of Sciences, Institute for Technical Physics and Materials Science, Budapest (Hungary)

### **Tunable aluminum nanocrescents as a platform for circular dichroism spectroscopy and surface-enhanced Raman spectroscopy**

**Anh Nguyen, Amy Morren, Jennifer Shumaker-Parry**  
The University of Utah, United States of America

### **Spectral Characterization of High-Speed SERS Fluctuations**

**Makayla M Schmidt<sup>1</sup>, Marit A Engevik<sup>1</sup>, Nathan D Lemke<sup>1</sup>, Alexandre G Brolo<sup>2</sup>, Nathan C Lindquist<sup>1</sup>**

<sup>1</sup>Bethel University, United States of America; <sup>2</sup>University of Victoria, Canada

### **A Portable SERS-based Lateral Flow Assay Strip for Rapid and Sensitive Detection of SARS-CoV-2 Antigen**

**Younju Joung, Kihyun Kim, Jaebum Choo**  
Chung-Ang University, Korea, Republic of (South Korea)

### **Characterization of PHBHx-based SPEs for Li polymer battery**

**SUJIN LEE<sup>1</sup>, YEONJU PARK<sup>2</sup>, ISAO NODA<sup>3,4</sup>, YOUNG MEE JUNG<sup>1,2</sup>**

<sup>1</sup>Department of Chemistry, Institute for Molecular Science and Fusion Technology, Kangwon National University, Chuncheon 24341, Korea; <sup>2</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Korea; <sup>3</sup>Department of Materials Science and Engineering, University of Delaware, Newark, DE 19716, USA; <sup>4</sup>Danimer Scientific, 140 Industrial Blvd., Bainbridge, GA 39817, USA

### **SERS-based microdroplet sensor for sensitive and reproducible detection of SARS-CoV-2**

**Sohyun Park, Namhyun Choi, Joung-II Moon, Kang Min Lee, Jaebum Choo**

Chung-Ang University, Korea, Republic of (South Korea)

### **Ag modified porous Silicon SERS substrates for the real-time pathogenic bacteria detection in mastitic milk obtained from infected cattle**

**Divagar Muthukumar, Giorgi Shtenberg**

Institute of agricultural engineering, Agricultural research organization, Israel

### **Migration study of organotin compounds from food packaging by surface enhanced Raman scattering**

**Luisa Mandrile<sup>1</sup>, Andrea Mario Giovannozzi<sup>1</sup>, Martina Vona<sup>1</sup>, Jesus Salafranca<sup>2</sup>, Gianmarco Martra<sup>3</sup>, Andrea Mario Rossi<sup>1</sup>**

<sup>1</sup>National Institute of Metrological Research (INRIM), Italy; <sup>2</sup>University of Zaragoza, Spain; <sup>3</sup>University of Torino, Italy

### **Pigments and aging influence on the common plastics waste Raman signal: sorting algorithm evaluation based on Raman Spectroscopy**

**Ioana Marica<sup>1</sup>, Mihaela Aluaș<sup>1</sup>, Ana Maria Hodoroagea<sup>2</sup>, Simona Cîntă Pinzaru<sup>1</sup>**

<sup>1</sup>Babeș-Bolyai University, Physics Faculty, Kogălniceanu 1, RO-400084 Cluj-Napoca, Romania; <sup>2</sup>Babeș-Bolyai University, Faculty of Chemistry and Chemical Engineering, A. János 11, RO-400028 Cluj-Napoca, Romania

### **Probing Supramolecular Ligands by Ultraviolet Resonance Raman Spectroscopy: Molecular Tweezers**

**Tim Holtum<sup>1</sup>, Philipp Rebmann<sup>2</sup>, Vikas Kumar<sup>1</sup>, Thomas Schrader<sup>2</sup>, Sebastian Schluucker<sup>1</sup>**

<sup>1</sup>University Duisburg-Essen, Physical Chemistry I, 45141 Essen, Germany; <sup>2</sup>University Duisburg-Essen, Organic Chemistry, 45141 Essen, Germany

### **Raman and Surface Enhanced Raman Scattering (SERS) for the Detection of Trace Components in Drug Mixtures**

**Lea Gozdziński, Azam Shafiul, Margo Ramsay, Ashley Larnder, Ian Garber, Bruce Wallace, Dennis Hore**

University of Victoria, Canada

(08/26/22)

**Characterisation of synthetic inclusions containing CaS, Al<sub>2</sub>O<sub>3</sub>, MgO·Al<sub>2</sub>O<sub>3</sub> and calcium aluminate (CaO)<sub>x</sub>–(Al<sub>2</sub>O<sub>3</sub>)<sub>y</sub> phases found in steels using Raman spectroscopy**

**Francis Gyakwaa**, Matti Aula, Tuomas Alatarvas, Tero Vuolio, Qifeng Shu, Marko Huttula, Timo Fabritius  
University of Oulu, Finland

**Effect of Er interlayer on microstructure and composition of erbium oxide coating on steel**

**Shiping Zhang**, Dan Yan, Ping Wu

School of Mathematics and Physics, University of Science and Technology Beijing, Beijing 100083, China

**In situ tracking electrochemical CO<sub>2</sub> reduction reaction intermediates on Cu(111) and Cu(110) surfaces by Raman spectroscopy**

Li Jian-Feng, Nataraju Bodapp, **Zhao Yu**

Department of Chemistry, Xiamen University, Xiamen 361005, China

**Thermoelectric properties of lower concentration K-doped Ca<sub>3</sub>Co<sub>4</sub>O<sub>9</sub> ceramics**

**Ya-nan Li**, Ping Wu, Shiping Zhang, Jinguang Yang

School of Mathematics and Physics, University of Science and Technology Beijing, Beijing 100083, China

**Blue Phosphorene Nanoscrolls**

Yitian Wang<sup>1</sup>, Chenghuan Jiang<sup>2</sup>, **Qian Chen**<sup>1</sup>, Qionghua Zhou<sup>1</sup>, Yuhao Xu<sup>3</sup>

<sup>1</sup>Southeast University, China, People's Republic of; <sup>2</sup>Nanjing Institute of Technology, People's Republic of; <sup>3</sup>Prairie View A&M University, U.S.A.

**Defect-induced Raman phonons in the van der Waals bonded ferromagnet Fe<sub>2.8</sub>GeTe<sub>2</sub>**

**Guofeng Cheng**

Shanghai Institute of Ceramics, Chinese Academy of Sciences, China, People's Republic of

**Charge Transfer in Core-Shell Au NRs-MBA@Cu<sub>2</sub>O Structure Based on Surface-enhanced Raman Scattering**

**Lin Guo**

Jilin University, People's Republic of China

**Experimental vis-à-vis theoretical investigations on self-affine properties of SERS active substrates**

**Somsubhra Saha**, Joydeep Chowdhury

Jadavpur University, India

**Finding new chemometric tools for Raman spectra analysis: Fuzzy clustering of bacterial species detected at single-cell level by SERS**

**Nicoleta Elena Dina**<sup>1</sup>, Ana Maria Raluca Gherman<sup>1</sup>, Alia Colniță<sup>1</sup>, Daniel Sorin Marconi<sup>1</sup>, Costel Sârbu<sup>2</sup>

<sup>1</sup>National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania; <sup>2</sup>Faculty of Chemistry and Chemical Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania

**In situ or colloidal prepared metal nanoparticles on E.coli and cyanobacteria for improved reproducible SERS**

**Daniel Zimmermann**, Vanessa Rumpler, Daniel-Ralph Hermann, David Lilek, Birgit Herbinger, **Katerina Prohaska**  
FHWN, Biotech Campus Tulln, Austria

**Novel strategy for hot spots generation using tyramine-mediated crosslinking chemistry**

**Eungyeong Park**<sup>1</sup>, Sila Jin<sup>2</sup>, Yeonju Park<sup>2</sup>, Hyejin Chang<sup>2,3</sup>, Young Mee Jung<sup>1,2</sup>

<sup>1</sup>Department of Chemistry, Kangwon National University, Chuncheon 24341, Korea; <sup>2</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Republic of Korea; <sup>3</sup>Division of Science Education, Kangwon National University, Chuncheon 24341, Republic of Korea

**Raman based detection of ciprofloxacin in pharmaceutical formulations**

**Chen Liu**<sup>1,2</sup>, Lisa Müller-Böttcher<sup>3</sup>, Dagmar Fischer<sup>3,4</sup>, Dana Cialla-May<sup>1,2</sup>, Jürgen Popp<sup>1,2</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology Jena - Member of the research alliance "Leibniz Health Technologies", Albert-Einstein-Straße 9, 07745 Jena, Germany; <sup>2</sup>Institute of Physical Chemistry and Abbe Center of Photonics, Friedrich Schiller University Jena, Helmholtzweg 4, 07743 Jena, Germany; <sup>3</sup>Friedrich Schiller University Jena, Pharmaceutical Technology and Biopharmacy, Lessingstraße 8, 07743 Jena, Germany; <sup>4</sup>Jena Center for Soft Matter (JCSM), Friedrich Schiller University Jena, Philosophenweg 7, 07743 Jena, Germany

**SARS-CoV-2 Screening Using Raman Spectroscopy Enhanced with Flexible Nanoparticle Substrates**

**Wangcun Jia**, Phuong Le, Robert Brown, George Peavy, Thomas Milner

University of California, Irvine, United States of America

**Novel insights into the oxidation behaviour of Nitride Bonded Silicon Carbide (NBSC) by in-situ Raman spectroscopy**

**Johannes T. Kehren**<sup>1</sup>, Marcel Bastian<sup>2</sup>, Sinje U. Zimmer<sup>1</sup>, Christian Dannert<sup>2</sup>, Olaf Krause<sup>1</sup>

<sup>1</sup>Hochschule Koblenz, Materials Engineering Glas & Ceramics, Höhr-Grenzhausen, Germany; <sup>2</sup>Forschungsgemeinschaft Feuerfest e.V., Höhr-Grenzhausen, Germany

**Depolarization ratios and intensity redistribution in methane Raman spectrum as a function of pressure**

**Dmitry Petrov**, Ivan Matrosov, Aleksandr Tanichev

Institute of monitoring of climatic and ecological systems, Russian Federation

**Animal Feedstuff Inspection using Shifted Excitation Raman Difference Spectroscopy**

Kay Sowoidnich<sup>1</sup>, Michael Oster<sup>2</sup>, Klaus Wimmers<sup>2</sup>, Martin Maiwald<sup>1</sup>, **Bernd Sumpf**<sup>1</sup>

<sup>1</sup>Ferdinand-Braun-Institut, Berlin, Germany; <sup>2</sup>Forschungsinstitut für Nutztierbiologie, Dummerstorf, Germany

(08/26/22)

### **Biochemical Origin of Raman-Based Diagnostics of Huanglongbing in Grapefruit Trees**

**Tianyi Dou<sup>1</sup>, Lee Sanchez<sup>1</sup>, Shankar Pant<sup>2</sup>, Sonia Irigoyen<sup>2</sup>, Nicolas Goff<sup>1</sup>, Zhongliang Xing<sup>1</sup>, Prakash Niraula<sup>2</sup>, Kranthi Mandadi<sup>3</sup>, Dmitry Kurouski<sup>1</sup>**

<sup>1</sup>Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX, United States; <sup>2</sup>Texas A&M AgriLife Research and Extension Center at Weslaco, Weslaco, TX, United States; <sup>3</sup>Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX, United States

### **A SERS-based capillary sensor for Galactose Detection using 4-Mercaptophenylboronic Acid-Immobilized Silver Nanoshells**

**Eun Hae Heo<sup>1</sup>, Hyejin Chang<sup>1,2</sup>**

<sup>1</sup>Division of Science Education, Kangwon National University, Chuncheon 24341, Republic of Korea; <sup>2</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Republic of Korea

### **Raman spectroscopy quantitative analysis of triclosan incorporated in nanofibrous layers**

**Michal Knor, Adela Kotzianova, Kristyna Skuhrovcova, Lenka Bardonova, Ondrej Zidek, Vladimir Velebný**

Contipro a.s., Czech Republic

### **Taxonomic identification of Campylobacter spp. by Surface-enhanced Raman Scattering according to the International Organization for Standardization (ISO) methods.**

**Krzysztof Niciński**

Institute of Physical Chemistry Polish Academy of Science, Poland

### **Particle Size-dependent Onset of Quantum Regime in Ideal Dimers of Gold Nanospheres**

**Sebastian Schlücker, Jesil Jose, Ludmilla Schumacher, Mandana Jalali, Jan Taro Svejda, Daniel Erni**

University of Duisburg-Essen, Germany

### **Kitaev Magnetism and Fractionalized Excitations in Double Perovskite Sm<sub>2</sub>ZnIrO<sub>6</sub>**

**Birender Singh<sup>1</sup>, Michael Vogl<sup>2</sup>, Sabine Wurmehl<sup>2,3</sup>, Saicharan Aswartham<sup>2</sup>, Bernd Büchner<sup>2,3</sup>, Pradeep Kumar<sup>1</sup>**

<sup>1</sup>Indian Institute of Technology Mandi, India; <sup>2</sup>Leibniz-Institute for Solid State and Materials Research, IFW-Dresden, 01069 Dresden, Germany; <sup>3</sup>Institute of Solid State Physics, TU Dresden, 01069 Dresden, Germany

### **Salivary glands analyzed by Raman spectroscopy and surface-enhanced Raman spectroscopy (SERS): Towards development of the novel tool for clinical diagnosis**

**Marta Czaplicka<sup>1</sup>, Aneta Aniela Kowalska<sup>1</sup>, Ariadna Barbara Nowicka<sup>1</sup>, Wojciech Kukwa<sup>3</sup>, Zuzanna Gronkiewicz<sup>2</sup>, Dominik Kurzydłowski<sup>2</sup>, Agnieszka Kamińska<sup>1</sup>**

<sup>1</sup>Institute of Physical Chemistry PAS, Poland; <sup>2</sup>Otolaryngology Department of the Dentistry Division, Czerniakowski Hospital, Warsaw; <sup>3</sup>Faculty of Mathematics and Natural Sciences, School of Exact Sciences, Cardinal Stefan Wyszyński University, Warsaw

### **Deep UV Raman spectroscopy for bio-pharma cleaning validation**

**Krishnakumar Chullipalliyalil, Liam Lewis, Michael McAuliffe**

Center for Advanced Photonics and Process Analysis (CAPPA), Cork Institute of Technology, Ireland.

### **UVRR monitoring of temperature and water effects on choline based DES**

**Mariagrazia Tortora<sup>1</sup>, Barbara Rossi<sup>1</sup>, Monica Ferro<sup>2</sup>, Greta Colombo Dugoni<sup>2</sup>, Maria Enrica Di Pietro<sup>2</sup>, Andrea Mele<sup>2</sup>**

<sup>1</sup>Elettra Sincrotrone Trieste; <sup>2</sup>Politecnico di Milano, Department of Chemistry, Materials and Chemical Engineering “Giulio Natta”

### **Soft polyacrylamide hydrogels as a cell culture matrix for mechanical and spectroscopic study of glioblastoma development**

**Katarzyna Pogoda, Ewa Pięta, Klaudia Suchy, Czesława Paluszkiwicz, Wojciech Kwiatek**

Institute of Nuclear Physics Polish Academy of Sciences, Poland

### **The impact of surface-roughness in SERS assessed by a fully quantum mechanical approach**

**Amirhassan Khodadadi<sup>1</sup>, Raul D. Rodriguez<sup>2</sup>, Evgeniya Sheremet<sup>2</sup>, Stefanie Gräfe<sup>1</sup>, Stephan Kupfer<sup>1</sup>**

<sup>1</sup>Friedrich Schiller University of Jena, Germany; <sup>2</sup>Tomsk Polytechnic University, Russia

### **Tuning the Water Vapor Adsorption Properties of UiO-66 via Cr-doped**

**Sen Chen, Ping Wu, Guodong Fu, Shiping Zhang, Shang Liu**  
University of Science and Technology Beijing, China, People's Republic of

### **Vibrational properties of PbI<sub>2</sub>: from bulk to monolayer**

**Ariete Righi, Thiago Seniuk, Rafael N. Gontijo, Joyce C. C. Santos, Bernardo R. A. Neves, Marcos A. Pimenta**  
Departamento de Física, UFMG, Brazil

### **Gold nanotriangle-based SERS biosensor for adiponectin detection for early diagnosis of gestational diabetes mellitus**

**Wansun Kim<sup>1</sup>, Ayoung Bang<sup>1</sup>, Hyerin Lee<sup>1</sup>, Sujeong Lee<sup>2</sup>, Yeon-Hee Kim<sup>2</sup>, Samjin Choi<sup>1</sup>**

<sup>1</sup>Department of Biomedical Engineering, College of Medicine, Kyung Hee University, Seoul, Republic of Korea; <sup>2</sup>Department of Obstetrics & Gynecology, Uijeongbu St Mary's Hospital, College of Medicine, The Catholic University of Korea, Gyeonggi-do, Republic of Korea

### **Electro-Inductive Effect—Electrodes That Act as Functional Groups to Control Electronic Properties and Chemical Reactivities of a Molecule**

**Hojin Ahn, Sang Woo Han**

KAIST, Korea, Republic of (South Korea)

(08/26/22)

### High-speed time-domain Raman spectral imaging with compressed sensing

**Shigekazu Takizawa<sup>1</sup>, Kotaro Hiramatsu<sup>1</sup>, Shunsuke Ono<sup>2</sup>, Kesuke Goda<sup>1,3,4</sup>**

<sup>1</sup>The University of Tokyo, Japan; <sup>2</sup>Tokyo Institute of Technology, Japan; <sup>3</sup>University of California, Los Angeles, USA; <sup>4</sup>Wuhan University, China

### Enhanced Raman Scattering on Nine 2D van der Waals Materials

**Hikari Kitadai<sup>1</sup>, Xingzhi Wang<sup>1</sup>, Nannan Mao<sup>2</sup>, Shengxi Huang<sup>3</sup>, Xi Ling<sup>1,4,5</sup>**

<sup>1</sup>Boston University, United States of America; <sup>2</sup>Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA 02139, United States; <sup>3</sup>Department of Electrical Engineering, The Pennsylvania State University, University Park, Pennsylvania 16802, United States; <sup>4</sup>Division of Materials Science and Engineering, Boston University, Boston, Massachusetts 02215, United States; <sup>5</sup>The Photonics Center, Boston University, Boston, Massachusetts 02215, United States

### Spectro-Nanoscopy of Ultrathin Films of Organic and Biological Specimens via Infrared Photo-induced Force Microscopy (IR PiFM)

**Sung Park, Padraic O'Reilly, Beihang Yu**  
Molecular Vista, United States of America

## THURSDAY POSTER PRESENTATIONS

### Poster THU-A: Poster Session Thursday Afternoon

Thursday, August 18, 2022  
11:50am - 2:25pm

### Hyper-Raman Spectroscopy of Chiral Nanostructures: Shining Circularly Polarised Light on the Elusive Forbidden Raman Modes

**Robin Raffe Jones<sup>1</sup>, Ventsislav K Valev<sup>1</sup>, Daniel Wolverson<sup>1</sup>, Tim Batten<sup>2</sup>, Brian Smith<sup>2</sup>**

<sup>1</sup>University of Bath, United Kingdom; <sup>2</sup>Renishaw Plc, Wotton-under-Edge, United Kingdom

### Frequency modulation CARS imaging with a fiber optical parametric oscillator

**Kristin Wallmeier<sup>b</sup>, Tim Hellwig<sup>a</sup>, Maximilian Brinkmann<sup>a</sup>, and Carsten Fallnich<sup>b</sup>**

<sup>a</sup>Refined Laser Systems GmbH, Mendelstraße 11, Münster, Germany, <sup>b</sup>Institute of Applied Physics, University of Münster, Corrensstraße 2, Münster, Germany

### A label-free multimodal nonlinear microscope for biological applications

**Arianna Bresci<sup>1</sup>, Benedetta Talone<sup>1</sup>, Francesco Manetti<sup>1</sup>, Valentina Parodi<sup>2</sup>, Martina Recchia<sup>1</sup>, Carlo Valensise<sup>1</sup>, Giulio Cerullo<sup>1</sup>, Dario Polli<sup>1</sup>**

<sup>1</sup>Department of Physics, Politecnico di Milano, Italy; <sup>2</sup>Department of Chemistry, Materials and Chemical Engineering "G. Natta", Politecnico di Milano, Italy

### Phonon hydrodynamic transport in 2D materials by ultrafast laser-based techniques

**Grazia Raciti**  
University of Basel, Switzerland

### Surface-Enhanced Femtosecond Stimulated Raman Spectroscopy: Effects of the Energy of Plasmon Resonances on Dispersive Line Shapes in Spectra

**Patryk Pyrcz, Sylwester Gawinkowski**  
Institute of Physical Chemistry Polish Academy of Sciences, Poland

### Ferrocene appended Porphyrins; a Spectroscopic and Computational study

**Joseph Mapley**  
University of Otago, New Zealand

### Excited State Dynamics of Arylazopyrazole Photoswitches

**Till Reichenauer<sup>1</sup>, Vikas Kumar<sup>1</sup>, Katharina Ziegler<sup>2</sup>, Bart Jan Ravoo<sup>2</sup>, Sebastian Schlücker<sup>1</sup>**

<sup>1</sup>Department of Chemistry and Center for Nanointegration Duisburg-Essen (CENIDE), University Duisburg-Essen, Essen, Germany; <sup>2</sup>Organic Chemistry Institute and Center for Soft Nanoscience, Westfälische Wilhelms-Universität Münster, Münster, Germany

### At-Line Monitoring of Downstream Process by Time-gated Raman technology

**Mari Tenhunen, Amutha Daniel**  
Timegate Instruments Oy, Finland

### Low Frequency Raman microscopy for API polymorphisms analysis

**Thibault Brulé, Céline Eypert, Massimiliano Rocchia**  
HORIBA France SAS, France

### Towards explainable AI using molecular weight windows to probe disease biomarkers using vibrational spectroscopy

**Edward Duckworth<sup>1</sup>, Deb Roy<sup>1</sup>, Murali Krishna<sup>2</sup>, Venkat Kanamarlapudi<sup>1</sup>, Matt Mortimer<sup>3</sup>, Bilal Al-Sarireh<sup>3</sup>**

<sup>1</sup>Swansea University, United Kingdom; <sup>2</sup>Advanced Center for Treatment, Research and Education in Cancer (ACTREC), India; <sup>3</sup>Morrison Hospital, United Kingdom

(08/26/22)

### **Raman microspectroscopy highlights new features on hair greying.**

**Raoul VYUMVUHORE<sup>1</sup>**, Laurie VERZEAUX<sup>1</sup>, Sophie GILARDEAU<sup>1</sup>, Sylvie BORDES<sup>1</sup>, Elodie AYMARD<sup>1</sup>, Michel MANFAIT<sup>2</sup>, Brigitte CLOSS<sup>1</sup>

<sup>1</sup>SILAB, R&D Department, Brive la Gaillarde, France; <sup>2</sup>BioSpecT (Translational BioSpectroscopy) EA 7506, Université de Reims Champagne-Ardenne, Reims, France

### **Raman spectroscopy for rapid at-line assessment of pluripotency in stem cells**

**Jeppe Hagedorn<sup>1,2</sup>**, Caroline Halloin<sup>1</sup>, Lars Poulsen<sup>1</sup>, Martin A.B. Hedegaard<sup>2</sup>

<sup>1</sup>R&ED, Novo Nordisk A/S, 2760 Maaloev, Denmark; <sup>2</sup>Section for Biotechnology, Technical Faculty, University of Southern Denmark, 5230 Odense M

### **Ultraviolet resonance Raman (UVR) spectroscopy for label-free monitoring of peptide recognition by supramolecular ligands**

**Tim Holtum, Luca Vincenzo Supovec, Jens Voskuhl, Michael Giese, Thomas Schrader, Sebastian Schlücker**

University of Duisburg-Essen, Germany

### **Shedding Light into the effect of Fusarium circinatum fungus on pines**

**Inês P. Santos<sup>1</sup>**, Daniel Martín<sup>1</sup>, Glória Pinto<sup>2</sup>, Pedro Monteiro<sup>2</sup>, Maria P. Marques<sup>1</sup>, Luís Batista de Carvalho<sup>1</sup>

<sup>1</sup>University of Coimbra, Portugal; <sup>2</sup>University of Aveiro, Portugal

### **Degradation of Insulin Amyloid Fibrils Analyzed by Atomic Force Microscopy and Surface-Enhanced Raman Spectroscopy**

**Erwan Yudiar Darussalam<sup>1,2</sup>**, Péterfi Orsolya<sup>4</sup>, Tanja Deckert-Gaudig<sup>1</sup>, Volker Deckert<sup>1,2,3</sup>

<sup>1</sup>Leibniz Institute of Photonic Technology (IPHT), Germany; <sup>2</sup>Institute of Physical Chemistry (IPC), Friedrich Schiller Universität Jena, Germany; <sup>3</sup>Institute of Quantum Science and Engineering, Texas A&M University, College Station, USA; <sup>4</sup>George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Târgu Mureș, Romania

### **In vitro enzymatic activity sensing platform based on surface enhanced Raman scattering**

**Gyudo Lee<sup>1</sup>**, Yoochan Hong<sup>2</sup>

<sup>1</sup>Korea University, Korea, Republic of (South Korea); <sup>2</sup>KIMM, Korea, Republic of (South Korea)

### **Interactions of phospholipid vesicle with Fe<sub>3</sub>O<sub>4</sub> nanoparticle: FTIR and Raman vibrational spectroscopies study**

**Gyeong Bok Jung<sup>1</sup>**, Seong Jin Back<sup>1</sup>, Jisun You<sup>2</sup>, Jeunghee Park<sup>2</sup>

<sup>1</sup>Chosun University, Korea, Republic of (South Korea); <sup>2</sup>Korea University Sejong Campus, Korea, Republic of (South Korea)

### **In search of spectroscopic signatures of Alzheimer's disease: the investigation of Porphyromonas gingivalis by SERS coupled with Principal Component Analysis.**

**Evelin Witkowska**

Institute of Physical Chemistry Polish Academy of Science, Poland

### **Who's who? Discrimination of Breast Cell Lines by Raman Microspectroscopy**

**I.P. Santos<sup>1</sup>**, **C.B. Martins<sup>1,2</sup>**, L.A.E. Batista de Carvalho<sup>1</sup>, M.P.M. Marques<sup>1,2</sup>, A.L.M. Batista de Carvalho<sup>1</sup>

<sup>1</sup>Unidade de I&D Química-Física Molecular, Department of Chemistry, University of Coimbra; <sup>2</sup>Department of Life Sciences, University of Coimbra

### **A spectroscopic – based approach for the early assessment of the drug induced phospholipidosis in endothelium**

**Ewelina Bik<sup>1,2</sup>**, Jagoda Orelanska<sup>2</sup>, Lukasz Mateuszuk<sup>1</sup>, Stefan Chlopicki<sup>1,3</sup>, Malgorzata Baranska<sup>1,2</sup>, Katarzyna Majzner<sup>1,2</sup>

<sup>1</sup>Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, 14 Bobrzynskiego Str., 30-348 Krakow, Poland; <sup>2</sup>Faculty of Chemistry, Jagiellonian University, 2 Gronostajowa Str., 30-387 Krakow, Poland; <sup>3</sup>Chair of Pharmacology, Jagiellonian University, 16 Grzegorzeczka Str., 31-531 Krakow, Poland

### **Machine Learning Analysis of Spectral Data using Bacterial Metabolic Networks for Signal Amplification**

**Hong Wei, Yixin Huang, Peter Santiago, Allon Hochbaum, Regina Ragan**

UC Irvine, United States of America

### **Real-time monitoring of mammalian cell culture by Time-gated Raman Spectroscopy**

**Amuthachelvi Daniel, Mari Tenhunen**

Timegate Instruments, Finland

### **Enhanced Tri-modal Optical-Photothermal Infrared (O-PTIR) Spectroscopy – Advances in Spatial Resolution, Sensitivity & Tri-modality (IR, Raman & Fluorescence)**

**Mustafa Kansiz**

Photothermal Spectroscopy Corp., United States of America

### **Single-photon-sensitive infra-red luminescence spectroscopy of live cells**

**Sergey V. Pereverzev**

Lawrence Livermore National Laboratory, United States of America

### **Identification of Enantiomers Using Low-Frequency Raman Spectroscopy**

**Vinavaka Harshothama Damle, Hagit Aviv, Yaakov R Tischler**

Bar-Ilan University, Israel

### **Nanoscale optical microscopy and spectroscopy – from real space observation of polaritons to chemical identification on biomaterials**

**Philip Schaefer, Nicolai Hartmann**

neaspec GmbH, Germany

(08/26/22)

**CARS endomicroscopic imaging probe enabled by a double-core double-clad fiber and related focus-combining micro-optical concept**

Ekaterina Pshenay-Severin<sup>1</sup>, Gregor Matz<sup>1</sup>, Karl Reichwald<sup>1</sup>, Jörg Bierlich<sup>2</sup>, Jens Kobelke<sup>2</sup>, Hyeonsoo Bae<sup>2</sup>, Tobias Meyer<sup>2</sup>, Bernhard Messerschmidt<sup>1</sup>, Jürgen Popp<sup>2,3</sup>

<sup>1</sup>GRINTECH GmbH, Germany; <sup>2</sup>Leibniz Institute of Photonic Technology, Germany; <sup>3</sup>Institute of Physical Chemistry and Abbe Center of Photonics, Friedrich Schiller University Jena, Germany

**Saliva Raman Spectroscopy: Exploring stratification of subjects with oral premalignant disorders**

ARTI HOLE<sup>1</sup>, NIKITA MAHESHWARI<sup>2</sup>, SHEETAL CHOUDHARY<sup>3</sup>, ATUL DESHMUKH<sup>2</sup>, MURALI KRISHNA CHILAKAPATI<sup>1</sup>

<sup>1</sup>ACTREC,TMC,KHARGHAR,NAVI MUMBAI , INDIA, India; <sup>2</sup>D. Y. Patil University, Navi Mumbai, India; <sup>3</sup>Yerala Dental College, Kharghar, Navi Mumbai,India

**Defects in polymer multilayer films: a new way to investigate based on Raman microscopy**

Thibault Brulé, Céline Eypert, Massimiliano Rocchia  
HORIBA France SAS, France

**Transportable high-performance Raman system for arts and cultural heritage analysis**

Tim Batten<sup>1</sup>, Riccardo Tagliapietra<sup>2</sup>, Tim Prusnick<sup>1</sup>

<sup>1</sup>Renishaw plc, United Kingdom; <sup>2</sup>Renishaw S.p.A, Italy

**Low-frequency Raman spectroscopy facilitated by a novel narrow linewidth 785 nm diode laser with enhanced spectral purity**

Magnus Rådmark, Gunnar Elgcrona, Håkan Karlsson, Peter Jänes

Cobolt AB, Sweden

**Rapid identification of different subtypes of the same bacteria based on Raman spectroscopy**

睿明 赵<sup>1</sup>, 葵 龚<sup>2</sup>

<sup>1</sup>塔里木大学, China, People's Republic of; <sup>2</sup>北京服装学院, china, people's Republic of

**Optimising and understanding the spectroscopic signatures associated with planetary surface processes**

Sidhi Karavadra, Ian B Hutchinson, Hannah N Lerman, Melissa McHugh

University of Leicester, United Kingdom

**Raman Hetero Two-Dimensional Correlation Spectroscopy: A powerful technique for monitoring active centres in complex environments**

Julian Hniopek<sup>1,2</sup>, Michael Schmitt<sup>2</sup>, Jürgen Popp<sup>1,2</sup>, Thomas Bocklitz<sup>1,2</sup>

<sup>1</sup>Leibniz Institute of Photonic Technologies, Jena, Germany; <sup>2</sup>Friedrich Schiller University Jena, Jena, Germany

**Rapid method for analyzing the biochemical content of the honeys produced by *Tetrigona* sp and *Apis mellifera***  
Bibin Bintang Andriana<sup>1</sup>, Pampang Parikesit<sup>2</sup>, Susanti Withaningsih<sup>2</sup>, Pradjna Novedya Paramitha<sup>1</sup>, We Nurdiana<sup>3</sup>, Hidetoshi Sato<sup>1</sup>

<sup>1</sup>Department of Biomedical Chemistry, Graduate school of Science and Technology, Kwansei Gakuin University. 2-1 Gakuen, Sandashi, Hyogo-ken, 669-1337. Japan.; <sup>2</sup>Department Biology, Center for Environment and Sustainability Science, Padjadjaran University. Jl Sekeloa Selatan No. 1 Bandung 40132, West Java, Indonesia.; <sup>3</sup>Sintang Orangutang Center, Jl. M. Saad No.8-Sintang 78611 Kelurahan Tanjung Puri, West Kalimantan, Indonesia.

**Insights on the dehydration process of PNIPAAm based hydrogels using 2D Raman correlation spectroscopy**  
Yeonju Park<sup>1</sup>, Minkyung Kim<sup>2</sup>, Hoeil Chung<sup>3</sup>, Young Mee Jung<sup>1,2</sup>

<sup>1</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Chuncheon 24341, Republic of (South Korea); <sup>2</sup>Department of Chemistry, Institute for Molecular Science and Fusion Technology, Kangwon National University, Chuncheon 24341, Republic of (South Korea); <sup>3</sup>Department of Chemistry and Research Institute for Convergence of Basic Science, Hanyang University, Seoul 04763, Republic of Korea

**Drop Coating Deposition Raman Spectroscopy of Liposomes on Substrates with Different Roughness**  
Alžběta Kůžová<sup>1</sup>, Anna Kuzminova<sup>2</sup>, Ondřej Kylián<sup>2</sup>, Eva Kočíšová<sup>1</sup>

<sup>1</sup>Institute of Physics, Faculty of Mathematics and Physics, Charles University, Ke Karlovu 5, 121 16 Prague, Czech Republic; <sup>2</sup>Department of Macromolecular Physics, Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, 180 00 Prague, Czech Republic

**Raman Spectroscopy Study of Commercial Activated Carbons Aging Processes**

Sari Katz, A. Pevzner, V. Shepelev, S. Marx, H. Rotter, T. Amitay-Rosen, I. Nir

On Sabbatical leave from Soreq NRC

**Effects of types of reduction and optimization in graphene oxide multilayers under influence laser power**

Adela Aurora Pérez Carreño<sup>1,2</sup>, Lucy Marleny Huayllacayan Mallqui<sup>3</sup>, Juan Abraham Méndez Velasquez<sup>4</sup>, Larissa Zoraya Hinojosa Vidal<sup>3</sup>, Carmen Sandra Guzman Calcina<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma, Perú; <sup>2</sup>Universidade Federal Do ABC, Brazil; <sup>3</sup>Pontificia Universidad Católica del Perú, Perú; <sup>4</sup>Universidad del Callao, Perú

**Raman Imaging System for 2D Materials Characterization**

Sergej Shashkov, Valery Kopachevsky, Alexander Kudryakov, Alexander Grigorenko  
SOL instruments, Belarus

**Application of Raman Imaging to the Chemical Characterization and Dating of Paper**

Enrico Pigorsch, Antje Harling  
Papiertechnische Stiftung (PTS), Germany

(08/26/22)

### **Raman Spectroscopy Study of 95.5%AgNbO<sub>3</sub>-4.5%LiTaO<sub>3</sub> Ceramics**

**Svetlana Krylova**

Kirensky Institute of Physics Federal Research Center KSC SB RAS, Russian Federation

### **Rh-P25 Photocatalysts for degradation of glyphosate**

**Jennyffer Stefania Martinez Quimbayo<sup>1</sup>, Manoj Ghosal<sup>2</sup>, Bryan Heilala<sup>3</sup>, Samuli Urpelainen<sup>2</sup>, Satu Ojala<sup>1</sup>**

<sup>1</sup>Environmental and Chemical Engineering, Faculty of Technology, University of Oulu, Oulu, Finland.; <sup>2</sup>Nano and Molecular Systems Research Unit, University of Oulu, Oulu, Finland.; <sup>3</sup>Timegate Instruments Inc, Oulu, Finland.

### **Mechanisms of the phase transition in imidazolium lead bromide perovskites studied using Raman spectroscopy**

**Szymon Piotr Smolka, Anna Gągor, Dawid Drozdowski, Maciej Ptak, Mirosław Mączka**

Institute of Low Temperature and Structure Research Polish Academy of Sciences, Poland

### **Raman spectroscopy: A tool for analyzing phase transitions in hypophosphite coordination polymers under high pressure**

**Maciej Ptak<sup>1</sup>, Mirosław Mączka<sup>1</sup>, Szymon Sobczak<sup>2</sup>, Mikołaj Kryś<sup>2</sup>, Fabio Furtado Leite<sup>3</sup>, Daniel Linhares Militão Vasconcelos<sup>4</sup>, Waldeci Paraguassu<sup>3</sup>, Paulo Tarso Cavalcante Freire<sup>4</sup>, Andrzej Katrusiak<sup>2</sup>**

<sup>1</sup>Institute of Low Temperature and Structure Research Polish Academy of Sciences, Poland; <sup>2</sup>Faculty of Chemistry, Adam Mickiewicz University, Poznań, Poland; <sup>3</sup>Physics Department, Federal University of Pará, Belém, Brazil; <sup>4</sup>Physics Department, Federal University of Ceará, Fortaleza, Brazil

### **Automated and Reproducible Synthesis of Gold Nanoparticles for SERS**

**Roland Grzeschik, Asen Dankov, Laurin Hensen, Sebastian Schlücker**

Universität Duisburg-Essen, Germany

### **In situ study of the mineral reactions during hydration in calcium aluminate cements (CAC)**

**Sinje U. Zimmer<sup>1</sup>, Olaf Krause<sup>1</sup>, Kerstin Hauke<sup>2</sup>, Thorsten Geisler<sup>2</sup>**

<sup>1</sup>Hochschule Koblenz, Materials Engineering Glas & Ceramics, Höhr-Grenzhausen, Germany; <sup>2</sup>University Bonn, Institute of Geoscience, Bonn, Germany

### **Study on Water Vapor Adsorption Properties of Mn-Doped MIL-101 (Cr)**

**Shang Liu, Ping Wu, Shiping Zhang, Guodong Fu, Dan Yan**  
School of Mathematics and Physics, University of Science and Technology Beijing, Beijing 100083, China

### **In Situ Observe Silicon Nitriding Process Using Raman Spectroscopy**

**Jinguang Yang, Ping Wu, Dan Yan, Shiping Zhang, Ya-Nan Li, Li Wang**

University of Science and Technology Beijing, China, People's Republic of

### **Dielectrophoretic trap made via femtosecond laser micromachining for separation of bacteria from fluids and SERS detection**

**Tomasz R. Szyborski<sup>1</sup>, Yuriy Stepanenko<sup>1,2</sup>, Patrycja Piecyk<sup>1</sup>, Krzysztof Niciński<sup>1</sup>, Dorota Korsak<sup>3</sup>, Ariadna Nowicka<sup>1</sup>, Agnieszka Kamińska<sup>1</sup>**

<sup>1</sup>Institute of Physical Chemistry of the Polish Academy of Sciences, Kasprzaka 44/52, 01-224 Warsaw, Poland; <sup>2</sup>Fluence sp. z o.o., Kasprzaka 44/52, 01-224 Warsaw, Poland; <sup>3</sup>Faculty of Biology, Department of Applied Microbiology, Institute of Microbiology, University of Warsaw, Miecznikowa 1, 02-096, Warsaw, Poland

### **Raman-scattering studies of pressure-induced phase transitions in perovskite-like dicyanamide frameworks**

**Mirosław Mączka<sup>1</sup>, Maciej Ptak<sup>1</sup>, Anna Gągor<sup>1</sup>, Fabio Furtado Leite<sup>2</sup>, Waldeci Paraguassu<sup>2</sup>**

<sup>1</sup>Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Poland; <sup>2</sup>Faculdade de Física, Universidade Federal do Pará, 66075-110 Belém, Brazil

### **Ensemble-level single particle characterisation of SERS nanoparticles**

**Jana Ockova**

The Institute of Photonics Sciences Barcelona (ICFO), Spain

### **Transfer of chirality from chiral capped silver nanoparticles to achiral adsorbate evidenced by surface-enhanced resonance Raman optical activity**

**Moumita Das<sup>1,2</sup>, Debraj Gangopadhyay<sup>1</sup>, Petr Bouřil<sup>1,2</sup>**

<sup>1</sup>Institute of Organic Chemistry and Biochemistry, Academy of Sciences, Flemingovo náměstí 2, Prague 16610, Czech Republic; <sup>2</sup>Department of Analytical Chemistry, University of Chemistry and Technology, Technická 5, Prague 16628, Czech Republic

### **SERS-PCR ASSAYS OF SARS-COV-2 USING AU NANOPARTICLES-ANCHORED AU NANODIMPLE SUBSTRATES**

**Hajun Dang<sup>1</sup>, Yixuan Wu<sup>1</sup>, Sung-Gyu Park<sup>2</sup>, Jaebum Choo<sup>1</sup>**

<sup>1</sup>Department of Chemistry, Chung-Ang University, Seoul, South Korea; <sup>2</sup>Advanced Nano-Surface Department, Korea Institute of Materials Science (KIMS), South Korea

### **Monocrystalline Gold Platelets as a Platform for Reproducible High-Performance SERS Substrates**

**Thien Anh Le<sup>1,2</sup>, Henriette Maaß<sup>1,2</sup>, Enno Schatz<sup>1,2</sup>, Thorsten Feichtner<sup>1</sup>, Bert Hecht<sup>1</sup>**

<sup>1</sup>NanoOptics & Biophotonics group, Experimental Physics 5, University of Wuerzburg, Germany; <sup>2</sup>NanoStruct GmbH, Wuerzburg, Germany

### **Gold Nanocrystals on Glass Nanopipette for In-situ Intracellular Surface-Enhanced Raman Spectroscopy**

**Guili ZHAO, Alex Guell**

Ecole Polytechnique, France

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### **Point of Care Detection of Drug Induced Liver Injury using a SERS Based LIFA Device**

**Benjamin Clark<sup>1</sup>, Sian Sloan-Dennison<sup>1</sup>, Kathleen Scullion<sup>3</sup>, James Dear<sup>3</sup>, Dieter Bingemann<sup>2</sup>, Paul Fineran<sup>3</sup>, David Creasey<sup>2</sup>, Cicely Ramthmell<sup>2</sup>, Karen Faulds<sup>1</sup>, Duncan Graham<sup>1</sup>**

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### **Structural Orientation of Aromatic Thiols on Au(111) Surface: Experiment and Theory**

**Joscha Hekele, Matthias Linke, Thomas Keller, Jesil Jose, Marvin Hille, Eckart Hasselbrink, Sebastian Schluecker, Peter Kratzer**

University of Duisburg-Essen, Germany

### **SERS-based Kinetic Monitoring of the Platinum-catalyzed Hydrogen Reduction of the Three Nitrothiophenol Constitutional Isomers (2/3/4-NTP)**

**Daniel Schäfer, Jesil Jose, Roland Grzeschik, Sebastian Schlücker**

Universität Duisburg-Essen, Germany

### **SERS-based study assisted by chemometric methods as a tool for differential diagnosis of vaginal infections**

**Sylwia Berus<sup>1</sup>, Beata Mlynarczyk-Bonikowska<sup>2</sup>, Monika Adamczyk-Poplawska<sup>3</sup>, Agnieszka Kamińska<sup>1</sup>**

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### **SERS-like effect using hexagonal Boron Nitride as substrate**

**Jessica Santos Lemos<sup>1</sup>, Andreij de Carvalho Gadelha<sup>1</sup>, Cristiano Fantini Leite<sup>1</sup>, Eliel Gomes da Silva Neto<sup>2</sup>**

<sup>1</sup>Federal University of Minas Gerais, Brazil; <sup>2</sup>Federal University of Bahia, Brazil

### **SERS-active Fe<sub>3</sub>O<sub>4</sub>@TiO<sub>2</sub>-Au nanocomposites as a Reusable Photocatalyst**

**Sila Jin<sup>1</sup>, Shuang Guo<sup>2</sup>, Eungyeong Park<sup>2</sup>, Yeonju Park<sup>1</sup>, Lei Chen<sup>3</sup>, Young Mee Jung<sup>1,2</sup>**

<sup>1</sup>Kangwon Radiation Convergence Research Support Center, Kangwon National University, Korea; <sup>2</sup>Kangwon National University, Republic of Korea; <sup>3</sup>Jilin Normal University, P.R. China

### **New Insight of Charge Transfer Enhancement: Carrier Density Effect**

**Lei Chen<sup>1</sup>, Shuang Guo<sup>2</sup>, Sila Jin<sup>2</sup>, Young Mee Jung<sup>2</sup>**

<sup>1</sup>Jilin Normal University, <sup>2</sup>Kangwon National University

### **Effect of conductivity and SERS activity by temperature-mediated crystallinity changes of PEDOT:PSS organic semiconductor**

**Shuang Guo<sup>1</sup>, Eungyeong Park<sup>1</sup>, Sila Jin<sup>2</sup>, Chen Lei<sup>3</sup>, Yeonju Park<sup>2</sup>, Young Mee Jung<sup>1,2</sup>**

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### **Development of the surface enhanced Raman spectroscopy substrate using convective self-assembly method**

**Munsik Choi<sup>1</sup>, Soogeun Kim<sup>2</sup>, Kyung min Byun<sup>1</sup>**

<sup>1</sup>Kyung Hee University, Yongin, Korea, Republic of (South Korea); <sup>2</sup>Kyung Hee University, Seoul, Korea, Republic of (South Korea)

### **Theoretical Investigation of 3D Near-Field Probes**

**Kourosh Rezaei<sup>1,2</sup>, Volker Deckert<sup>1,2,3</sup>**

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### **Sample extraction and detection methods for SERS-based food safety applications**

**Tomas Rindzevicius<sup>1</sup>, Marlitt Viehrig<sup>1</sup>, Simindokht Rostami<sup>1,2</sup>, Sriram Thoppe Rajendran<sup>1</sup>, Kuldeep Sanger<sup>1</sup>, Tommy Sonne Alstrøm<sup>1</sup>, Demi Zhai<sup>3</sup>, Lidia Morelli<sup>1</sup>, Jørn Smedsgaard<sup>3,5</sup>, Michael Stenbæk Schmidt<sup>4</sup>, Kinga Zor<sup>1</sup>, Anja Boisen<sup>1</sup>**

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### **Dynamic DNA Origami/Gold Nanoparticle Hybrid Device for Distance-controlled Dimer Assembly**

**Michael Erkelenz<sup>1</sup>, Richard Kosinski<sup>2</sup>, Helene Giesler<sup>1</sup>, Oliver Sritharan<sup>1</sup>, Jesil Jose<sup>1</sup>, Barbara Sacca<sup>2</sup>, Sebastian Schlücker<sup>1</sup>**

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### **Determination of the limit of detection of multiple pesticides utilizing surface enhanced Raman spectroscopy (SERS)**

**Anne-Marie Dowgiallo, Derek Guenther**

Ocean Insight, United States of America



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### **TERS and TEPL imaging of 2D Materials**

**Marc Chaigneau**, Agnès Tempez, Ophélie Lancry  
HORIBA Scientific, France

### **Studying phase separation in Lipid Bilayers Mixture and detection of femtomolar graphene solution in bilayers using TERS**

**Agnès TEMPEZ**<sup>1</sup>, Pierre BURGOS<sup>2</sup>, Marc CHAIGNEAU<sup>1</sup>  
<sup>1</sup>HORIBA FRANCE SAS; <sup>2</sup>HORIBA UK Ltd

### **Tip enhanced Raman spectroscopy and chemical imaging of cyclo[18]carbon by density functional theory**

**Shafqat Hussain**<sup>1,2</sup>, Zhenglong Zhang<sup>1</sup>, Hairong Zheng<sup>1</sup>  
<sup>1</sup>School of Physics and Information Technology, Shaanxi Normal University, 710119, Xi'an, China; <sup>2</sup>Nanomaterials Research Group, Physics Division, PINSTECH, 44000, Islamabad, Pakistan

### **Multifunctional Copper Nanocubes: A Platform for SERS Activity and Specific CO<sub>2</sub> Reduction**

**ESTER MIRANDA**, DIERIC DOS SANTOS ABREU,  
DOUGLAS DOS SANTOS LOPES, PAOLA CORIO  
UNIVERSITY OF SÃO PAULO, Brazil

### **Deep-UV SERS of Bio- and Explosive Molecules using Rhodium Nanoparticles**

**Govind Kumar**, **Ravi Kant Soni**  
Indian Institute of Technology Delhi, India

### **Evaluation and Metrology of Surface-Enhanced Raman Scattering (SERS) substrates**

**Arash Azarakhshi**<sup>1,3</sup>, Li-Lin Tay<sup>2</sup>, Alexandre G. Brolo<sup>1,3,4</sup>  
<sup>1</sup>Department of Chemistry, University of Victoria, BC, Canada; <sup>2</sup>Metrology Research Centre, National Research Council Canada, Ottawa, ON, Canada; <sup>3</sup>Department of Physics and Astronomy, University of Victoria, BC, Canada; <sup>4</sup>Center for Advanced Materials and Related Technologies (CAMTEC), University of Victoria, BC, Canada

### **DNA origami assisted gold dimers as SERS substrates on optical fiber tips for direct miRNA detection using hairpin probes**

**Anisha Pathak**, Anushree Dutta, Ilko Bald  
Department of Chemistry, University of Potsdam, Germany

### **Plasmonic catalysis of different molecules on Au/Ag nanoarrays monitored by surface-enhanced Raman spectroscopy**

**Shashank Gahlaut**, Ilko Bald  
Dept. of Chemistry, University of Potsdam, Germany

### **Surface-enhanced Raman spectra of KFeO<sub>2</sub> nanoparticles**

**Ankush Kumar**<sup>1</sup>, Gurmeet Singh Lotey<sup>2</sup>  
<sup>1</sup>Sant Baba Bhag Singh University, Jalandhar, India; <sup>2</sup>Nano Research Lab, Department of Physics, DAV University, Jalandhar, Punjab, India.

### **The charge density wave state in 4H-NbSe<sub>2</sub>: Effect of dimensionality, proximity, and magnetic field**

**Suvodeep Paul**, Devesh Negi, Saheb Karak, Bommarreddy Poojitha, Chandan Patra, R. P. Singh, Ravi Shankar Singh, Surajit Saha  
Indian Institute of Science Education and Research Bhoapl, India

### **Vibrational spectroscopic investigation of molecular structure, hindered-rotation, vibrational properties and other molecular characteristics of 1-Methoxy-4-(2-tosylvinyl) benzene supported by DFT analysis**

**SRISHAILAM K**<sup>1</sup>, Balakrishna A<sup>2</sup>, Venkatram Reddy B<sup>3</sup>, Ramana Rao G<sup>4</sup>  
<sup>1</sup>Department of Physics, SR University, Warangal, Telangana, India; <sup>2</sup>Department of Chemistry, Indian Institute of Technology, Roorkee, Uttarakhand, India; <sup>3</sup>Department of Physics, Kakatiya University, Warangal, India; <sup>4</sup>Department of Physics, Kakatiya University, Warangal, India

### **Comparison of Gold and Silver nano thin films for chemical sensing of Tenofovir using Surface Enhanced Raman Spectroscopy.**

**Setumo Lebogang Thobakgale**<sup>1,2</sup>, Saturnin Ombinda Lemboumba<sup>1</sup>, Yaseera Ismail<sup>2</sup>, Patience Mthunzi-Kufa<sup>1,2</sup>  
<sup>1</sup>National Laser Centre, Council for Scientific and Industrial Research, P.O. Box 395, Pretoria 0001, South Africa; <sup>2</sup>University of KwaZulu-Natal, School of Chemistry and Physics, Quantum Research group, University Road, Westville, Durban 4000, South Africa.

### **Synthesis monitoring of Silver/Gelatin crosslinker nanocomposites on silver nano thin films, for molecular sensor applications using Raman spectroscopy.**

**Setumo Lebogang Thobakgale**<sup>1,2</sup>, Saturnin Ombinda-Lemboumba<sup>1</sup>, Yaseera Ismail<sup>2</sup>, Patience Mthunzi-Kufa<sup>1,2</sup>  
<sup>1</sup>CSIR, South Africa; <sup>2</sup>UKZN

### **Line-Scanning VSGF Hyperspectral Microscopy for Imaging Self-Assembled and Biomimetic Materials**

**Zishan Wu**, Jackson Wagner, Wei Xiong  
UCSD, United States of America

### **The harmful effects of Mg segregation on InGaN/GaN light-emitting diodes**

**TAEYOUNG PARK**  
UNI-RISCO LED center, United States of America

### **Non-destructive Raman identification of barium ferrite phase in powders and very thin film samples**

**Francesco Mezzadri**<sup>3</sup>, **Giulia Spaggiari**<sup>1,2</sup>, Michele Casappa<sup>3</sup>, Davide Delmonte<sup>2</sup>, Francesco Pattini<sup>2</sup>, Stefano Rampino<sup>2</sup>, Danilo Bersani<sup>1</sup>  
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