Program ofBRICS Workshop on Biophotonics -2021
SEPTEMBER 27 –29, 2021, SARATOV, RUSSIA

Chairs:

Valery V. Tuchin, Saratov State University, Russia
Qingming Luo, Hainan University, China
Vanderlei Salvador Bagnato, University of São Paulo, Brazil
Santhosh Chidangil, Manipal Academy of Higher Education, India
Heidi Abrahamse, University of Johannesburg, RSA

Secretaries:

Polina A. Dyachenko, Optics and Biophotonics Department, Saratov State University, Saratov, Russia
Dongyu Li, HUST, China
Lilian Moriyama & Natalia M. Inada, University of São Paulo, Brazil
Renu John, Indian Institute of Technology, Hyderabad, India

September 27, Monday

ON-LINE INVITED LECTURES
Room 8, Building 3

Chairs: **Valery V. Tuchin,** Saratov State University, Russia; **Qingming Luo,** Hainan University, China

ZOOM platform
https://us05web.zoom.us/j/9161835305?pwd=Sk5YcVFNNHZBS1RXZ05pU1NDVXFBZz09

Saratov time (UTC+4)/Brazil time/India time/RSA time/China time

14.00-14.10/7.00-7.10/15.30-15.40/ 12.00-12.10/18.00-18.10
Welcome words from Chairs of the BRICS Workshop on Biophotonics -2021
Valery V Tuchin, Saratov State University, Russia
Qingming Luo, Hainan University, China
Vanderlei Salvador Bagnato, University of São Paulo, Brazil
Santhosh Chidangil, Manipal Academy of Higher Education, India
Heidi Abrahamse, University of Johannesburg, RSA

14.10-14.30/7.10-7.30/15.40-16.00/ 12.10-12.30/18.10-18.30
Optical Clearing as a Tool for Multimodal Tissue Imaging
Valery V. Tuchin, Saratov State University, Institute of Precision Mechanics and Control of the RAS, Saratov; National Research Tomsk State University, Tomsk; A.N. Bach Institute of Biochemistry, Federal Research Center of Biotechnology of the RAS, Moscow, Russia

14.30-14.50/7.30-7.50/16.00-16.20/ 12.30-12.50/18.30-18.50
Visualizing Brain-wide Networks at Single-Neuron Resolution with Micro-Optical Sectioning Tomography
Qingming Luo, School of Biomedical Engineering, Hainan University, Haikou; HUST-Suzhou Institute for Brainsmatics, JITRI Institute for Brainsmatics, Suzhou; Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, MoE Key Laboratory for Biomedical Photonics, School of Engineering Sciences, Huazhong University of Science and Technology, Wuhan, China

14.50-15.10/7.50-8.10/16.20-16.40/ 12.50-13.10/18.50-19.10
Development of Optical Methods and Probes to Optimize the Performance of Stimulated Emission Depletion Imaging
Junle Qu, Center for Biomedical Optics and Photonics, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen, China

15.10-15.30/8.10-8.30/16.40-17.00/ 13.10-13.30/19.10-19.30
Focusing and Imaging Deep Within Highly Scattering Medium Based on Reflection Matrix Method
Jing Cao, School of Biomedical Engineering, Hainan University, China

15.30-15.50/8.30-8.50/17.00-17.20/ 13.30-13.50/19.30-19.50
Biophotonic Approaches towards Circulating Tumor Cell Detection, Cancer Treatment and Nerve Stimulation
Ramapurath S.Jayasree, Division of Biophotonics and Imaging, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, India

15.50-16.10/8.50-9.10/17.20-17.40/ 13.50-14.10/19.50-20.10
Imaging with Quantum Light
Andrew Forbes, Distinguished Professor, Department of Physics, Faculty of Science, University of the Witwatersrand, RSA

16.10-16.30/9.10-9.30/17.40-18.00/ 14.10-14.30/20.10-20.30
Optimizating Radiotherapy with Light-Based Strategies
Clara Gonçalves Faria, University of São Paulo, Physics Institute of São Carlos, Brazil

16.30-16.50/9.30-9.50/18.00-18.20/ 14.30-14.50/20.30-20.50
Gap-enhanced Raman Tags for Analytical and Imaging Applications
Boris N. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganismsof the RAS, Saratov, Russia

16.50-17.10/9.50-10.10/18.20-18.40/ 14.50-15.10/20.50-21.10
Breathomics Using Laser Photo-Acoustic Spectroscopy and Machine Learning
YuryV.Kistenev, National ResearchTomsk State University, Tomsk, Russia

17.10-17.30/10.10-10.30/18.40-19.00/ 15.10-15.30/21.10-21.30
Scaled up Synthesis of Curcumin, and Photo-Larvicidal Effects against Aedes Aegypti Larvae: Working on Dengue Fever, Zika and Chikungunya Problem
Kleber Thiago de Oliveira, Department of Chemistry, Federal University of São Carlos – UFSCar, São Carlos-SP, Brazil

17.30-17.50/10.30-10.50/19.00-19.20/ 15.30-15.50/21.30-21.50
Adaptive Optical Bessel Beam Two-Photon Fluorescence Microscopy for Volumetric Imaging of Synapses in Deep Cortex
Wei Chen, Department of Physics, University of California, Berkeley, USA; Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology,China

17.50-18.10/10.50-11.10/19.20-19.40/ 15.50-16.10/21.50-22.10
Biodegradation: A Novel Challenge for Biophotonics
Peter S. Timashev, Institute for Regenerative Medicine, Sechenov University; Department of Polymers and Composites, N.N. Semenov Institute of

Chemical Physics of theRAS; Institute of Photonic Technologies, Research Center "Crystallography and Photonics" of theRAS, Russia(**16.50-17.10 MT)**

18.10-18.30/11.10-11.30/19.40-20.00/ 16.10-16.30/22.10-22.30
Photodynamic Inactivation of Dormant Forms of Non-Sporulating Bacteria Due to Endogenous Porphyrins
Alexander P. Savitsky, A. N. Bach Institute of Biochemistry, Federal Research Centre 'Fundamentals of Biotechnology' of the RAS,Moscow, Russia (**17.10-17.30 MT)**

18.30-18.50/11.30-11.50/20.00-20.20/ 16.10-16.30/22.10-22.30
Nontraditional Endogenous Fluorophores in the Human Organism, their Origin and Applications
Evgeny A. Shirshin,Physical Faculty, M.V.Lomonosov Moscow State University, Moscow, Russia(**17.30-17.50 MT)**

18.50-19.10/11.50-12.10/20.20-20.40/ 16.50-17.10/22.50-23.10
Disease Diagnosis by FTIR Spectroscopy
Denise Zezell, Laboratory of Biophotonics Center for Lasers and Applications Nuclear and Energy Research Institute IPEN-CNEN/SP, Brazil

19.10-19.30/12.10-12.30/20.40-21.00/ 17.10-17.30/23.10-23.30
Light and Ultrasound to Treat in a Non-Invasive Way Nodular and Pigmented Skin Lesions
Sebastião Pratavieira, São Carlos Institute of Physics, University ofSão Paulo, Brazil

19.30-19.50/12.30-12.50/21.00-21.20/ 17.30-17.50/23.30-23.50
Photonic and Acoustic Tools for Theranostics
Dmitry A. Gorin, Skolkovo Institute of Science and Technology, Skoltech, Moscow, Russia(**18.30-18.50 MT)**

September 28, Tuesday

ON-LINE INVITED LECTURES
Room 8, Building 3
Chairs: Vanderlei Salvador Bagnato, University of São Paulo, Brazil;
Santhosh Chidangil, Manipal Academy of Higher Education, India
ZOOM
platformhttps://us05web.zoom.us/j/9161835305?pwd=Sk5YcVFNNHZBS1RXZ05pU1NDVXFBZz09

14.10-14.30/7.10-7.30/15.40-16.00/ 12.10-12.30/18.10-18.30
Mueller Matrix Microscopy and Polarization Digital Pathology
Hui Ma, Shenzhen International Graduate School, Tsinghua University, Shenzhen, China; Department of Physics, Tsinghua University, Beijing, China

14.30-14.50/7.30-7.50/16.00-16.20/ 12.30-12.50/18.30-18.50
Application-driven Biophotonics for the Development of Indigenous Scientific Devices and Nanomedicines: The Need of the Hour
Samir Kumar Pal, Department of Chemical, Biological & Macromolecular Sciences, S. N. Bose National Centre for Basic Sciences, Kolkata, India

14.50-15.10/7.50-8.10/16.20-16.40/ 12.50-13.10/18.50-19.10
Agent-based Modelling of the First and the Second Waves of COVID-19 Spreading in Russian Federation Regions

Mikhail Yu. Kirillin, Institute of Applied Physics RAS, Nizhny Novgorod, Russia(**13.50-14.10 MT)**

15.10-15.30/8.10-8.30/16.40-17.00/ 13.10-13.30/19.10-19.30
Nano-photosensitizers for Enhanced Photodynamic Therapy
Buhong Li,Fujian Normal University, China

15.30-15.50/8.30-8.50/17.00-17.20/ 13.30-13.50/19.30-19.50
Image-based High-throughput Phenotyping of Agri-photonics
Qian Liu, School of Biomedical Engineering, Hainan University, China

15.50-16.10/8.50-9.10/17.20-17.40/ 13.50-14.10/19.50-20.10
Identification of Non-Communicable Diseases with Raman-Based Optical and Liquid Biopsy
Ivan A. Bratchenko, Samara National Research University, Samara, Russia

16.10-16.30/9.10-9.30/17.40-18.00/ 14.10-14.30/20.10-20.30
Multi-mode Cooperative Precision Therapy of Tumor Based on Phototherapy
Siwen Li, China Pharmaceutical University, Nanjing,China

16.30-16.50/9.30-9.50/18.00-18.20/ 14.30-14.50/20.30-20.50
Nano Scale Tissue Multifractal Anisotropy in Polarized Light Scattering: Novel Biomarker for Precancer Detection
Nirmalya Ghosh, Indian Institute of Science Education and Research (IISER), Kolkata, India

16.50-17.10/9.50-10.10/18.20-18.40/ 14.50-15.10/20.50-21.10
Antimicrobial Sonophotodynamic Therapy: APromisingApproach for Biofilm Inactivation.
Fernanda Alves, São Carlos Institute of Physics - University of São Paulo, Brazil

17.10-17.30/10.10-10.30/18.40-19.00/ 15.10-15.30/21.10-21.30
Enhanced Antibacterial Action of Silver Nanoparticles Loaded on Reduced Graphene Oxide Sheets under Blue-Light Irradiation
Anderson Caires, Optics and Photonics Group, Institute of Physics, Federal University of Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brazil

17.30-17.50/10.30-10.50/19.00-19.20/ 15.30-15.50/21.30-21.50
Single-shot Full Resolution Digital Holographic Microscopy: NewAlgorithms and Applications
Kedar Khare, Optics and Photonics Centre, Indian Institute of Technology, Delhi, India

17.50-18.10/10.50-11.10/19.20-19.40/ 15.50-16.10/21.50-22.10
Evolution of Photodynamic Therapy for Non-melanoma Skin Cancerin Brazil
Michelle Barreto Requena, Sao Carlos Institute of Physics, University of Sao Paulo, Brazil

18.10-18.30/11.10-11.30/19.40-20.00/ 16.10-16.30/22.10-22.30
Clinical Applications of OCT in Gastroenterology
Renu John, Department of Biomedical Engineering, Indian Institute of Technology, Hyderabad, India

18.30-18.50/11.30-11.50/20.00-20.20/ 16.10-16.30/22.10-22.30
Imaging by Photoacoustic Microscopy and Tomography with Plasmonic TiN Nanoparticles
Anderson Gomes, Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil

18.50-19.10/11.50-12.10/20.20-20.40/ 16.50-17.10/22.50-23.10
The use of Photodynamic for Controlling the Infections of the Respiratory Track
Vanderlei S. Bagnato, University of São Paulo, IFSC, Brazil

September 29, Wednesday

ON-LINE INVITED LECTURES

Room 8, Building 3

Chairs: Heidi Abrahamse, University of Johannesburg, RSA**, Vanderlei Salvador Bagnato,** University of São Paulo, Brazil

ZOOM platform

https://us05web.zoom.us/j/9161835305?pwd=Sk5YcVFNNHZBS1RXZ05pU1NDVXFBZz09

13.50-14.10/6.50-7.10/15.20-15.40/ 11.50-12.10/17.50-18.10

Nano Field Effect Transistors for Gas Sensors

Bonex Mwakikunga, Council of Science, Innovation and Research CeNAM
Prof Extraordinaire of Physics at Tshwane University of Technology, RSA

14.10-14.30/7.10-7.30/15.40-16.00/ 12.10-12.30/18.10-18.30

***In Vivo* Flow Cytometry Reveals a Circadian Rhythm of Circulating Tumor Cells**

Xunbin Wei, Biomedical Engineering Department, Peking University, Beijing, China

14.30-14.50/7.30-7.50/16.00-16.20/ 12.30-12.50/18.30-18.50

Our Forays into Light Based Medical Tools and Diagnostics

HarshawardhanWanare, Department of Physics and Centre for Lasers and Photonics Southern Laboratory SL-217(D), Indian Institute of Technology Kanpur, India

14.50-15.10/7.50-8.10/16.20-16.40/ 12.50-13.10/18.50-19.10

Prospects of Terahertz Technology in Diagnosis of Human Brain Tumors

Kirill I. Zaytsev, Prokhorov General Physics Institute of the RAS, Bauman Moscow State Technical University, Institute for Regenerative Medicine, Sechenov University, Moscow, Russia(**13.50-14.10 MT)**

15.10-15.30/8.10-8.30/16.40-17.00/ 13.10-13.30/19.10-19.30

Tissue Optical Clearing Windows for *In Vivo* Imaging

Dan Zhu, Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, MoE Key Laboratory for Biomedical Photonics, Huazhong University of Science and Technology, Wuhan, China

15.30-15.50/8.30-8.50/17.00-17.20/ 13.30-13.50/19.30-19.50

Scanning Femtosecond Laser Pulse Using a Digital Micromirror Device for Two-Photon Imaging and High Precision Laser Surgery

Shaoqun Zeng, Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics, MOE Key Laboratory for Biomedical Photonics, Collaborative Innovation Center for Biomedical Engineering, School of Engineering Sciences, Huazhong University of Science and Technology, Wuhan, China

15.50-16.10/8.50-9.10/17.20-17.40/ 13.50-14.10/19.50-20.10

Demonstration of Single Molecule Spectroscopy on Large Autofluorescent Protein Complexes

Tjaart Kruger, Department of Physics, Faculty of Natural and Agricultural Sciences, University of Pretoria, RSA

16.10-16.30/9.10-9.30/17.40-18.00/ 14.10-14.30/20.10-20.30

Synergistic Therapeutic Strategies for Cancer Treatment

Feifan Zhou, School of Biomedical Engineering, Hainan University, China

16.30-16.50/9.30-9.50/18.00-18.20/ 14.30-14.50/20.30-20.50

Opto-thermo-acoustic Studies for Cancer Diagnosis
Hardik J. Pandya, NANOFAB for Advanced Microsystems and Biomedical Devices for Clinical Research, Indian Institute of Science, Bangalore, India

16.50-17.10/9.50-10.10/18.20-18.40/ 14.50-15.10/20.50-21.10
***In vivo* Clinical Raman Spectroscopy: Non-invasive Applications in Cancers**
C. Murali Krishna, Advanced Centre for Treatment, Research and Education in Cancer, Mumbai, India

17.10-17.30/10.10-10.30/18.40-19.00/ 15.10-15.30/21.10-21.30
Measuring Drug Kinetics Using Quantum Sensing
Mark Tame, Photonics Department of Physics, Faculty of Science, University of Stellenbosch, RSA

17.30-17.50/10.30-10.50/19.00-19.20/ 15.30-15.50/21.30-21.50
Label-free Multimodal Nonlinear Optical Microscopy for Investigating Biomacromolecules
Nirmal Mazumder, Manipal Life Science Centre, MAHE, Manipal, India

17.50-18.10/10.50-11.10/19.20-19.40/ 15.50-16.10/21.50-22.10
Effective Pulse Compression for Nonlinear Microscopy
Erich Rohwer, Department of Physics, Faculty of Science, University of Stellenbosch, RSA

18.10-18.30/11.10-11.30/19.40-20.00/ 16.10-16.30/22.10-22.30
Biophotonics of Body Fluids for Clinical Applications
Santhosh Chidangil, Centre of Excellence for Biophotonics, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal, India

18.30-18.50/11.30-11.50/20.00-20.20/ 16.30-16.50/22.30-22.50
Improved Single Beam CARS Using Time-domain
Pieter Neethling, Laser Research Institute, University of Stellenbosch, RSA

Improving Stem Cell Differentiation using Near-Infrared and Green Irradiation
Anine Crous, Laser Research Centre, South African Research Chair in Laser Applications in Health,University of Johannesburg, RSA
Link to the presentation with audio:
https://drive.google.com/file/d/1Lxry1P9dZPMyYUPV3Lh1gcwOx0mA6MKN/view?usp=sharing

Breast Cancer Cell Damage Induced by Zinc Phthalocyanine Photosensitisers
Blassan George, Laser Research Centre, South African Research Chair in Laser Applications in Health, University of Johannesburg, RSA
Link to the presentation with audio:
https://drive.google.com/file/d/1AirdNm2RJ3i1pxtgCcjmndbJlbIgdQAd/view

Potentiation of Antimicrobial Photodynamic Inactivation Using Inorganic Salts
Mike Hamblin, Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, RSA
Link to the presentation with audio:
https://drive.google.com/file/d/1nIVluHCjpn25c9FS8T5pVpCwDOlOw8VK/view

Internet Posters:

1. **Study of microvasculature density using optical coherence tomography (OCT) angiography images**, C. P. Barrera-Patiño 1, Mirian Denise Stringasci 1, Lucas Orlandi de Oliveira 1, Éverton Lucas de Oliveira 1, Vicente Silva Mattos 1, Vanderlei Salvador Bagnato1,2 1 Sao Carlos Institute of Physics - University of Sao Paulo, Avenida Trabalhador São-carlense, nº 400, Parque Arnold Schimidt - CEP 13566-590, São Carlos - São Paulo – Brazil., São Carlos, SP, Brazil 2 Hagler Institute for Advanced Study, Texas A&M University, 400 Bizzell St, College Station, TX, 77843, United States of America
2. **Protocol evaluation using a portable device in Photodynamic therapy of basal cell carcinoma to decrease the time in hospitals,** Ana Gabriela Salvio,1, Michelle Barreto Requena, 2, Mirian Denise Stringasci, 2, Vanderlei Salvador Bagnato, 2,3. 1, Skin Department of Amaral Carvalho Hospital, Jahu-SP, Brazil, 2, Sao Carlos Institute of Physics, University of Sao Paulo (USP), Sao Carlos-SP, Brazil, 3 Hagler Institute for Advanced Studies, Texas A&M University, College Station Texas, Texas, USA
3. **Single Visit photodynamic therapy protocol: Effectiveness and 2 years follow-up of 315 nodular basal cell carcinoma,** Ana Gabriela Salvio,1, Mirian Denise Stringasci,2, Michelle Barreto Requena,2, Vanderlei Salvador Bagnato,2,3. 1 Skin Department of Amaral Carvalho Hospital, Jahu-SP, Brazil 2 Sao Carlos Institute of Physics, University of Sao Paulo (USP), Sao Carlos-SP, Brazil 3 Hagler Institute for Advanced Studies, Texas A&M University, College Station Texas, Texas, USA
4. **Antimicrobial Photodynamic Therapy for Pneumonia using extra body illumination: a translational approach,** Giulia Kassab, Johan S. D. Tovar, Cristina Kurachi, Vanderlei S. Bagnato Institute of Physics of Sao Carlos, University of Sao Paulo, Sao Carlos, Brazil
5. **Analysis of the sono-photodynamic effects using Protoporphyrin IX (PpIX): in vitro and in vivo studies,**Erika Ponce1, Fernanda Alves,1 José Vollet-Filho, 1 Marlon Rodrigues, 1 Vanderlei Salvador,1 Sebastião Pratavieira,1 1 São Carlos Institute of Physics, University of São Paulo, Brazil
6. **Analysis of the sono-photodynamic effects using Protoporphyrin IX (PpIX): in vitro and in vivo studies,** Erika Ponce,1 Fernanda Alves,1 José Vollet-Filho,1 Marlon Rodrigues,1 Leonardo de Boni,1 Vanderlei Salvador,1 Sebastião Pratavieira,1 1 São Carlos Institute of Physics, University of São Paulo, Brazil
7. **Development of a portable holographic lens-free microscope for cells and microorganisms observation,** Camila P. D'Almeida, 1 Natália P. de Oliveira, 1 Felipe A. Carvalho, 2 Patrick O. Feitosa, 2 Cesar Y. Kuramoto, 2 Sebastião Pratavieira 1 1 São Carlos Institute of Physics, University of São Paulo, Brazil 2 São Carlos School of Engineering, University of São Paulo, Brazil
8. **Photoacoustic Breath analyser for the diagnosis of Asthma,** Nidheesh V.R1, Aswini Kumar Mohapatra2, Rjaesh Nayak1, Unnikrishnan V.K.1, Rajeevkumar Sinha1, Vasudevan Baskaran Kartha1 and Santhosh Chidangil1* 1. Centre of Excellence for Biophotonics, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal, Karnataka,

India-576104 2. Department of Respiratory and Pulmonary Medicine, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India-576104 Corresponding author: santhosh.cls@manipal.edu Presenting author: nidheeshvr1995@gmail.com

9. **Whole blood Raman spectroscopy Analysis for Myocardial Infarction,** Reena V John1, Tom Devasia2, Mithun N1, Jijo Lukose1, Santhosh Chidangil1* 1. Centre of Excellence for Biophotonics Department of Atomic and Molecular Physics Manipal Academy of Higher Education, Manipal, Karnataka, India-576104 2. Department of Cardiology Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India-576104 *Corresponding Author: santhosh.cls@manipal.edu
10. **Micro-Raman spectroscopy study of Iron Deficiency Anemia and Beta thalassemia,** Mithun N,1, Jijo Lukose,1, Javed Ahammad M M,3, Shamee Shastry,2, Ganesh Mohan,2, Annamma Kurien,3, Santhosh Chidangil,1 1 Centre of Excellence for Biophotonics, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal, Karnataka, India -576104 2 Department of Immunohematology and Blood Transfusion, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India -576104 3 Department of Pathology, Melaka Manipal Medical College, Manipal Academy of Higher Education, Manipal, Karnataka, India -576104
11. **Development of Photosensitizers-functionalized Biopolymers for Bacterial Photoinactivation,** Lucas D. Dias a, Mirella Romanelli V. Bertolo b, Stanislau Bogusz Junior b, and Vanderlei S. Bagnato a,c a São Carlos Institute of Physics, University of São Paulo, São Carlos, Brazil; b Sao Carlos Institute of Chemistry, University of Sao Paulo, São Carlos 13566-590, SP, Brazil; c The Hagler Institute for Advanced Studies, Texas A&M University, College Station, TX, USA
12. **Vortex beam-based Raman Spectroscopy for Cell membrane studies,** Ghanashyam C, Aseefhali Bankapur*, Santhosh Chidangil Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal-576104, India
13. **Laser Induced Fluorescence study of kidney tissues: Diagnosis of renal cell carcinoma,** Sanoop Pavithran M1, Arun Chawla2, Ajaya kumar Barik1, Vittal Shenoy1, Jijo Lukose1, Ammasi Periasami3, V.B. Kartha1, Santhosh Chidangil1 1. Centre of Excellence for Biophotonics, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal 2. Department of Urology, Kasturba Medical College Manipal, Manipal Academy of Higher Education, Manipal 3. W.M. Keck Center for Cellular Imaging (KCCI), Biology, University of Virginia, USA
14. **Laser induced fluorescence (LIF) spectroscopic investigation of cervix tissue for the detection of chronic cervicitis,** Ajaya Kumar Barik1, Sanoop Pavithran M1, Jijo lukose1, Rekha Upadhya2, Muralidhar V Pai2, Ajeetkumar Patil1, Aseefhali Bankapur1 and Santhosh Chidangil1 1. Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal 2. Department of Obstetrics & Gynaecology, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal.

15. **Feasibility studies of an optimized LIBS system for biomedical applications,** Keerthi K1, Sajan D George2, Ravikiran Ongole3, Santhosh Chidangil1 and Unnikrishnan V K1, 1 Centre of Excellence for Biophotonics, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal-576104, India 2 Centre for Applied Nanosciences, Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal-576104, India 3. Department of Oral Medicine & Radiology, Manipal College of Dental Sciences, Mangalore, India
16. **Photodynamic, Sonodynamic and Sonophotodynamic Therapies against Staphylococcus aureus biofilm,** Fernanda Alves, 1 Natália M. Inada, 1 Sebastião Pratavieira,1 Vanderlei S. Bagnato,1 Cristina Kurachia, 1 1 São Carlos Institute of Physics - University of São Paulo
17. **Protein Profile study of neonatal tear fluids,** Alisha Rizvi1, Sphurti S Adigal2*, Sulatha V Bhandary1, and Santhosh Chidangil2 1. Department of Ophthalmology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal 2. Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal
18. **Efficient singlet oxygen generation by isolated air pollution nanoparticles and their effects on human tissues,** Vicente, M. L. F.1, Pratavieira, S.1, Santos, N. V. 2,4, Veras, M. M.2, Saldiva, P. H. N.2, Guimarães, F. E. G.1 1 São Carlos Institute of Physics, University of São Paulo, São Paulo, Brazil;2 Laboratory of Environmental and Experimental Pathology, Faculty of Medicine, University of São PauloSão Paulo, Brazil; 3 Department of Environmental Health, Faculty of Public Health, University of São Paulo, São Paulo, Brazil.