



## **BioPIC 2010 Programme**

The Hamilton Suite, Dunboyne Castle Hotel, Meath, Ireland

18th October - 20th October 2010

### **18<sup>th</sup> October – Day 1**

**9.00 – 11.30 Registration**

**11.30 – 12.00 Conference opening and welcome**

*Brian Harvey, NBIP Ireland National Coordinator*

*Martin Leahy, NBIP Ireland Scientific Director*

*Tony Wilson, Royal Microscopical Society*

*Science Foundation Ireland representative*

**12.00 – 12.30 European Research Strategy in Biophotonics and Imaging**

12.00 – 12.30 Euro-BioImaging

*Antje Keppler, European Molecular Biology Laboratory, Germany*

**12.30 – 1.30 Lunch break**

**1.30 – 3.45 Tissue Optics and Laser Tissue Interactions**

1.30 – 2.05 Optical clearing of tissues and blood: problems and perspectives

*Valery Tuchin, Saratov State University, Institute of Precise Mechanics and Control of RAS, Saratov, Russia*

2.05 – 2.40 Monitoring of Apoptosis in Viable Cells with Elastic Scattering Spectroscopy

*Irving Bigio, Department of Biomedical Engineering, Boston University, United States*

2.40 – 3.15 New Optical Techniques in Vision Science and the Clinic

*Chris Dainty, Applied Optics, National University of Ireland Galway, Ireland*

3.15 – 3.30 Topical optical clearing agent for enhanced microcirculation imaging and optical coherence tomography

*Joey Enfield, Biophotonics Group, University of Limerick, Ireland*

3.30 – 3.45 Raman spectroscopy for cancer diagnosis, a cervical cancer study

*Kelvin Poon, Focas Institute, Dublin Institute of Technology, Ireland*

- 3.45 – 4.15 Coffee break**
- 4.15 – 5.35 Image Processing and Data Management**
- 4.15 – 4.50 Computer aided detection for biomedical applications  
*Paul Whelan, Centre for Image Processing and Analysis, Dublin City University, Ireland*
- 4.50 – 5.05 BioImageXD – new software tools for image analysis and visualisation  
*Pasi Kankaanpää, University of Turku, Finland*
- 5.05 – 5.20 Analysis of carotid ultrasound data using image processing tools  
*Dana Ghita, Centre for Image Processing and Analysis, Dublin City University, Ireland*
- 5.20 – 5.35 Photonic field-effect transistor platform for bio-sensing  
*Michele Muccini, Consiglio Nazionale delle Ricerche, Istituto per lo Studio dei Materiali Nanostrutturati, Bologna, Italy*
- 5.35 – 7.00 Break**
- 7.00 – 8.30 Buffet reception and poster session**
- 8.30 – 10.30 Irish traditional music**

## **19<sup>th</sup> October – Day 2**

- 9.00 – 11.45 Fluorescence Microscopy**
- 9.00 – 9.35 Multidimensional fluorescence imaging and metrology: high content analysis for the understanding and diagnosis of disease  
*Paul French, Photonics Group, Physics Department, Imperial College London, United Kingdom*
- 9.35 – 10.10 Cellular *in vivo* imaging with long range objectives  
*Patrice Mollard, Centre National Recherche Scientifique, France*
- 10.10 – 10.45 Fluorescence cellular sensing and imaging with novel colour-changing fluorescent dyes  
*Alexander Demchenko, Palladin Institute of Biochemistry, Ukraine*
- 10.45 – 11.15 Coffee break**
- 11.15 – 11.30 Annihilation upconversion in HeLa cells: embedding in polymeric nanocapsules  
*Andrey Turshatav, Max-Planck-Institute for Polymer Research, Germany*
- 11.30 – 11.45 Method of calibration of a fluorescence microscope for quantitative studies  
*Tytus Bernas, Department of Physiology and Medical Physics, Royal College of Surgeons in Ireland, Ireland*
- 11.45 – 3.40 Advanced Microscopy**
- 11.45 – 12.20 Interventional imaging of the stomach defenses against acid

*Marshall Montrose, Department of Molecular and Cellular Physiology, University of Cincinnati, United States*

12.20 – 12.55 Making light work in microscopy

*Tony Wilson, Department of Engineering Science, University of Oxford, United Kingdom*

**1.00 – 2.00 Lunch break**

2.00 – 2.35 Focussing on mitochondria with STED microscopy

*Stefan Jakobs, Mitochondrial Structure and Dynamics, Max-Planck-Institute for Biophysical Chemistry, Germany*

2.35 – 3.10 Coherent diffractive imaging - from nanometric down to picometric spatial resolution

*Cinzia Giannini, Institute of Crystallography, National Research Council, Bari, Italy*

3.10 – 3.25 In vivo third harmonic generation microscopy at 1550nm: morphogenesis studies in living *Caenorhabditis elegans* embryos

*Rodrigo Aviles-Espinosa, ICFO-The Institute of Photonic Sciences, Spain*

3.25 – 3.40 Angle-resolved coherent laser wave-mixing for non-invasive and high frame-rate protein imaging

*Ian Mercer, Centre for Synthesis and Chemical Biology, University College Dublin, Ireland*

**3.40 – 4.05 Coffee break**

**4.05 – 5.30 Bio-Imaging – Part I**

4.05 – 4.40 Calcium imaging at high frame rates in isolated smooth muscle cells

*Noel McHale, Smooth Muscle Research Centre, Dundalk Institute of Technology, Ireland*

4.40 – 5.15 Fluorescence imaging combined with proteomics reveal novel regulators of brain development

*Eleanor Coffey, Neuronal Signalling Laboratory, Turku Centre for Biotechnology, Finland*

5.15 – 5.30 Dynamic imaging of vascular properties in the median eminence of living mice

*Marie Schaeffer, Centre National Recherche Scientifique, France*

**5.30 – 6.30 Break**

**6.30 – 7.30 Poster session**

**7.30 Conference dinner followed by live music**

### **20<sup>th</sup> October - Day 3**

**9.00 – 11.10 Bio-Imaging – Part II**

9.00 – 9.35 Parallel anatomical and neurophysiological approaches to brain circuits supporting episodic memory function: The extended hippocampal formation

*Shane O'Mara, Institute of Neuroscience, Trinity College Dublin, Ireland*

9.35 – 10.10 In vivo imaging of the injured brain

*Nikolaus Plesnila, Department of Physiology and Neurodegeneration, Royal College of Surgeons in Ireland, Ireland*

10.10 – 10.25 A simple scanless two-photon fluorescence microscope using selective plane illumination

*Jonathan Palero, ICFO-The Institute of Photonic Sciences, Spain*

**10.25 – 10.55 Coffee break**

10.55 – 11.10 CEST agents: how frequency can be used to generate contrast in proton Magnetic Resonance Imaging

*Department of Chemistry IFM, Molecular Imaging Center & Preclinical Imaging Center, University of Torino, Italy*

**11.10 – 1.05 Biophotonics - Diagnostics and Therapy**

11.10 – 11.45 Detection of mammalian gene expression at the single cell level

*Jochen Prehn, Department of Physiology and Medical Physics, Royal College of Surgeons in Ireland, Ireland*

11.45 – 12.20 Translational imaging in preclinical large animal model

*Noel Caplice, Centre for Research in Vascular Biology, University College Cork, Ireland*

12.20 – 12.35 Smartphone as a portable optical heart activity monitor

*Enock Jonathan, Biophotonics Group, University of Limerick, Ireland*

12.35 – 12.50 Numerical model to simulate a laser speckle correlation method to record ocular microtremor

*Emer Kenny, Trinity College Dublin, Ireland*

12.50 – 1.05 Lipoxin A4 increases airway surface liquid height in cystic fibrosis bronchial epithelia by stimulating ATP release, increasing Cl<sup>-</sup> secretion and inhibiting Na<sup>+</sup> absorption

*Valia Verriere, Department of Molecular Medicine, Royal College of Surgeons in Ireland, Ireland*

**1.05 – 2.00 Lunch break**

**2.00 – 3.40 Bio-medical Spectroscopy**

2.00 – 2.35 Biomedical imaging by means of linear and non-linear raman microspectroscopy

*Michael Schmitt, Friedrich-Schiller University Jena, Germany*

2.35 – 3.10 Genetically encoded FLIM-FRET substrate for in vivo detection of caspase activity

*Alexander Savitsky, Bach Institute of Biochemistry, Russia*

3.10 – 3.25 Vibrational spectroscopic imaging for cellular and subcellular biochemical analysis of response to toxic agents

*Franck Bonnier, Focas Institute, Dublin Institute of Technology, Ireland*

3.25 – 3.40 Vibrational spectroscopy for optical diagnosis of cirrhotic and cancerous human liver tissue

*Tibebe Lemma, National Centre for Sensor Research, Dublin City University, Ireland*

**3.40 – 4.00 Conference close and presentation of awards**



An Roinn Fiontar, Trádála agus Nuálaíochta  
Department of Enterprise, Trade and Innovation

Higher Education Authority  
An tÚdarás um Ard-Oideachas