



# Biophotonics - Riga

## 2nd International Conference

| SUN 27/08<br><i>Museum Hall, 4th floor</i> |                                      | MON 28/08<br><i>Auditorium #13</i> |   | TUE 29/08<br><i>Auditorium #13</i> |  |
|--|--------------------------------------|------------------------------------|---|------------------------------------|--|
| 16:00-17:00                                | Registration                         | 8:30 – 9:00                        | Registration  |                                    |  |
| 17:00 -21:00                               | Welcome reception and poster session | 9:00 - 9:30                        | <b>DIAGNOSTICS</b><br>Plenary talk,<br><b>V.Tuchin</b>  |                                    |  |
|  |                                      | 9:30 - 9:50                        | Invited talk<br><b>E.Borisova</b>                       | 9:30 - 10:00                       | Plenary talk<br><b>M.Niedre</b>  |
|  |                                      | 9:50 - 10:10                       | Invited talk,<br><b>M.Łędrzejewska-Szczerska</b>        | 10:00 - 10:20                      | Invited talk<br><b>G.Salerud</b>   |
|  |                                      | 10:10 -10:30                       | Invited talk<br><b>I.Meglinski</b>                      | 10:20 - 10:40                      | Invited talk<br><b>R.Rotomskis</b>   |
|  |                                      | 10:30 - 11:00                      | <i>Coffee break</i>                                     | 10:40 - 11:00                      | <i>Coffee break</i>  |
|  |                                      | 11:00 - 11:20                      | <b>G.Revalde</b>  | 11:00 - 11:20                      | <b>B.Cugmas</b>  |
|  |                                      | 11:20 - 11:40                      | <b>M.Wróbel</b>   | 11:20 - 11:40                      | <b>D.Bliznuks</b>  |
|  |                                      | 11:40 - 12:00                      | <b>A.Tereshchenko</b>                                   | 11:40 - 12:00                      | <b>M.Iralieva</b>  |
|  |                                      | 12:00 - 12:20                      | <b>M. Wąsowicz</b>                                      | 12:00 - 12:20                      | <b>I.Lihacova</b>  |
|  |                                      | 12:20 – 13:30                      | <i>Lunch</i>  | 12:20 – 13:30                      | <i>Lunch</i>   |
|  |                                      | 13:30 - 14:00                      | <b>MONITORING</b><br>Plenary talk<br><b>A.Kamshilin</b> | 13:30 - 14:00                      | <b>BIOPHOTONICS TECHNOLOGY TRENDS –</b><br>introduction, <b>J.Spigulis</b> |
|  |                                      | 14:00 - 14:20                      | Invited talk<br><b>W.Verkruijsse</b>                    | 14:00 - 16:00                      | Round table discussion –<br>expert panel                                   |
|  |                                      | 14:20 - 14:40                      | Invited talk,<br><b>U.Rubins</b>                        |                                    |  |
|  |                                      | 14:40 - 15:00                      | Invited talk<br><b>K.Wardell</b>                        |                                    |  |
|  |                                      | 15:00 - 15:30                      | <i>Coffee break</i>                                     |                                    |  |
|  |                                      | 15:30 - 15:50                      | <b>M.Huotari</b>  |                                    |  |
|  |                                      | 15:50 - 16:10                      | <b>Z.Marcinkevics</b>                                   | 16:00                              | Closing  |
|  |                                      | 16:10 - 16:30                      | <b>M.Wechner</b>  |                                    |  |
|  |                                      | 16:30 - 16:50                      | <b>M.Volynsky</b>                                       |                                    |  |
| 17:00 - 22:00                              | <i>Excursion, dinner</i>             |                                    |   |                                    |  |

# PROGRAMME

## **SUNDAY 27 August**

*Museum Hall, 4th floor, Raina Blvd.19*

**16:00** Registration and poster set-up

**17:00** Welcome Reception and Poster Session

## **MONDAY 28 August**

*Auditorium #13, 3<sup>rd</sup> floor, Raina Blvd.19*

**8:30** Registration

### ***Optical Clinical Diagnostics***

#### **9.00 – 9.30 Plenary Presentation**

**9:00 V.Tuchin (RU).** Tissue Immersion Clearing for Enhanced Imaging within the Ultra-Broad Wavelength Range: from Free Electrons to Optical and Terahertz Waves.

#### **9:30 – 10.30 Invited Presentations**

**9:30 E.Borisova (BG).** Microscopic and Macroscopic Spectral Peculiarities of Cutaneous Tumours

**9:50 M. Jędrzejewska-Szczerska (PL).** Low-Coherence Interferometric Fiber-Optic Sensors with Potential Applications as Biosensors

**10:10 I.Meglinski (FI).** Combined Structured Muller-Matrix Imaging of Turbid Optically Anisotropic Tissue-Like Scattering Medium with a Purpose of Non-Invasive Cancer Diagnosis

*10:30 Coffee break*

#### **11.00 – 12.20 Oral Presentations**

**11:00 G.Revalde, K.Grundšteins, J.Alnis, A.Skudra.** Cavity Ring down Spectrometry for Disease Diagnostics Using Exhaled Air

**11:20 M.S.Wróbel, S.Siddhanta, J.Smulko, I.Barman.** Surface-enhanced Raman Spectroscopy for Detection of Drugs in Blood

**11:40 A.Tereshchenko, V.Fedorenko, V.Smyntyna, I.Konup, A.Konup, M.Eriksson, R.Yakimova, S.Balme, M.Bechelany, A.Ramanavicius.** Towards Immunosensor for the Determination of GVA-Antigen Based on Photoluminescence of ZnO Films

**12:00 K.Karpienko, M.Wąsowicz, M.Ficek, M.Jędrzejewska-Szczerska.** Optical Investigation of Nanodiamonds Interactions with Blood

*12:20 Lunch*

### ***Optical In-vivo Monitoring***

**13.30 – 14.00 Plenary Presentation**

**13:30 A.Kamshilin (RU).** Remote Photoplethysmography: Where Does the Signal Come From?

**14.00 – 15.00 Invited Presentations**

**14:00 W.Verkruyse (NL).** Recent Developments in Contactless Health Monitoring

**14:20 U. Rubins (LV).** Remote Photoplethysmography Technique for Monitoring of Regional Anesthesia Effectiveness

**14:40 K.Wårdell (SE).** Optical Techniques for Monitoring in Neurosurgery

*15:00 Coffee break*

**15:30 – 16.50 Oral Presentations**

**15:30 M.Huotari, K.Määttä, J.Röning.** PPG of Young and Elderly People, Clinical Patients, and Cohorts

**15:50 Z.Marcinkevics, U.Rubins, A.Caica, E.Dislere, A.Grabovskis.** Evaluation of Nitroglycerin Effect on Remote Photoplethysmogram Waveform

**16:10 A.Lihachev, I.Lihacova, J.Spigulis, T.Trebst, M.Wechner.** Monitoring Soft Tissue Coagulation by Optical Spectroscopy

**16:30 M.Volynsky, R.Giniatullin, O.Mamontov, A.Kamshilin.** Study of Capsaicin-induced Changes of Blood Circulation by Imaging Plethysmography

**17:00 - 22:00 Excursion, Conference Dinner**

## ***Biomedical Tissue Imaging***

### **9.00 – 10.00 Plenary Presentations**

**9:00 S.Andersson-Engels (IE).** Acousto-optics for Deep Tissue Imaging and Photo-manipulation

**9:30 M.Niedre (USA).** Fluorescence Detection of Rare Circulating Cells In Vivo: Technology, Applications and Future Prospects

### **10:00 – 10.40 Invited Presentations**

**10:00 G.Salerud (SE).** Multispectral Snapshot Imaging to Record Spatial and Temporal Tissue Oxygenation Maps

**10:20 R.Rotomskis (LT).** Quantum Dots Accumulation and Distribution In Vivo with Special Reference to the Barriers between Different Tissues Species

*10:40 Coffee break*

### **11:00 – 12.20 Oral Presentations**

**11:00 B.Cugmas, F.Pernuš, B.Likar.** Color Constancy in Dermatoscopy with Smartphone

**11:20 D.Bliznuks, I.Kuzmina, K.Bolocko, A.Lihacovs.** Image Quality Enhancement for Skin Cancer Optical Diagnostics

**11:40 M.Iralieva, O.Myakinin, I.Bratchenko, V.Zakharov.** Computer Simulation of Skin Dermoscopy Images

**12:00 I.Lihacova, K.Bolocko, A.Lihachev.** Semi-automated Non-invasive Diagnostics Method for Melanoma Differentiation from Nevi and Basal Cell Carcinomas

*12:20 Lunch*

## ***Biophotonics Technology Trends***

**13:30 J.Spigulis.** Introduction

**14:00 Round table discussion – expert panel**

*16:00 Closing*

## **Poster Presentations**

1. **I.Brice, A.Pirkina, A.Ubele, K.Grundsteins, A.Atvars, R.Viter, J.Alnis.** Development of Optical WGM Resonators for Biosensors.
2. **I.Carneiro, S.Carvalho, R.Henrique, L.Oliveira, V.Tuchin.** Water Content in Human Liver from Dispersion Evaluation.
3. **M.Galat, N.Shpyrka, M.Taran, O.Pareniuk, K.Shavanova, O.Boiko.** Toxoplasmosis Diagnostics Based on Photoluminescence of Zinc Oxide Nanoparticles.
4. **D.Joseph.** Speckle Scattering Studies from Red Blood Cell Suspension.
5. **E.Konstantinova, A.Zyubin, V.Slezhkin, E.Moiseeva, K.Matveeva, V.Bryukhanov.** Application of Quantum Dots CdZnSeS/ZnS Luminescence, Enhanced by Plasmons of Roughness Silver Surface for Detection of Albumin in Blood Facies of Infected Person.
6. **I.Kuzmina, E.Borisova, Ts.Genova, P.Troyanova, J.Spigulis.** Towards In Vivo Skin Cancer Detection by Colour Parameters.
7. **I.Kuzmina, U.Rubins, I.Saknite, J.Spigulis.** Rosacea Assessment by Erythema Index and Principal Component Analysis Segmentation Maps.
8. **E.N.Lazareva, P.A.Timoshina, D.K.Tuchina, V.I.Kochubey, A.B.Bucharskaya, D.A.Alexandrov, I.G.Samusev, N.A.Myslitskaya, V.V.Bryukhanov, V.V.Tuchin.** Refractometry and Fluorescence Spectroscopy of Hemoglobin from Whole Blood of Rats with Alloxan Diabetes.
9. **A.Lihachev, E.V.Plorina, A.Derjabo, M.Lange, I.Lihacova.** Evaluation of Skin Pathologies by RGB Autofluorescence Imaging.
10. **O.Polschikova, A.Machikhin, V.Batshev, A.Ramazanova, V.Pozhar.** Optical System of a Microscope Module for Multispectral Quantitative Phase Imaging Based on Acousto-optic Filtration of Light.
11. **G.Revalde, K.Grundšteins, J.Alnis, A.Skudra.** First Results of Cavity Ring Down Signals from Exhaled Air.
12. **Yu.Ruban, V.Illienko, N.Nesterova, O.Pareniuk, K.Shavanova.** Estimation of the Effect of Radionuclide Contamination on Vicia Sativa L. Induction of Chlorophyll Fluorescence Parameters using "Floratest" Optical Biosensor.
13. **N.Shpyrka, Y.Ruban, O.Pareniuk, K.Shavanova.** The Immune Biosensor for Ochratoxin-A Detection Based on the Surface Plasmon Resonance Effect.
14. **M.Tamošiūnas, N.Kuliešienė, R.Daugelavičius.** Implicit Dosimetry of Microorganism Photodynamic Inactivation.
15. **M.Tamošiūnas, D.Jakovels, U.Rubins, J.Baltušnikas, R.Kadikis, R.Petrovska, S.Šatkauskas.** pEGFP Transfection into Murine Skeletal Muscle by Electrosonoporation.
16. **A.Zyubin, E.Konstantinova, V.Slezhkin, K.Matveeva, I.Samusev, V.Bryukhanov.** Application of Fluorescent and Vibration Spectroscopy for Septic Serum Human Albumin Structure Deformation during Pathology.

## **Post-deadline**

17. **A.Machikhin, O.Polschikova, V.Batshev, D.Khokhlov, A.Gorevoy.** Highly Effective Conjugation of Fiber-coupled Wide-band Light Sources and Acousto-optical Spectral Elements.