



*FP7-REGPOT-CT-2011-285912 - project FOTONIKA-LV*

**73<sup>rd</sup> Annual Scientific Conference  
of the University of Latvia**

**Section:**

**The Project "FOTONIKA-LV – FP7-REGPOT-CT-2011-285912"  
The Third Year Scientific Outcomes**

**6<sup>th</sup> February, 2015  
Riga Photonics Center  
Skunu street 4, Riga, Latvia**

# **BOOK OF ABSTRACTS**



**INTERNATIONAL  
YEAR OF LIGHT  
2015**

# PROGRAMME

## Registration 8:30-9:00

Auditorium at 4<sup>th</sup> Floor

## Oral Session 1 – Report on Outcomes of Work packages of project FOTONIKA-LV

### Chair A. Ubelis

Auditorium at 4<sup>th</sup> Floor

1	9:00-9:10	A. Ubelis	Overview of FOTONIKA-LV Project and its Results
2	9:10-9:20	S. Smalina	Results of WP1 – Partnerships, Exchange of Know-how and Experience
3	9:20-9:30	K. Salmins	Results of WP2 – Repatriation and Recruitment of Experienced Researchers
4	9:30-9:40	E. Smalins	Results of WP3 – Upgrading, Development or Acquisition of Research Equipment
5	9:40-9:50	D. Berzina	Results of WP4 – Knowledge Transfer and Training, Organisation of Workshops, Conferences and Summer Schools
6	9:50-10:00	A. Atvars	Results of WP5 – Dissemination, Promotion, Contribution to Innovation – Public Access Riga Photonics Centre

## Oral Session 2 – Scientists Recruited from Abroad by FP7 FOTONIKA-LV Project

### Chair V. Beldavs

Auditorium at 4<sup>th</sup> Floor

7	10:00-10:15	<u>R. Viter</u> , M. Bechelany, U. Riekstina, N. Starodub, D. Erts, V. Smyntyna, I. Yatsunskiy, A. Ubelis	Development and Application of Novel Photonic Materials
8	10:15-10:30	<u>J. R. del Pino</u> , K. Salmins, M. Abele, A. Meijers, I. Lyubych, S. Horelnykov, V. Zhaborovskyy	New Calibration for the Riga SLR Station
9	10:30-10:45	<u>T. Kirova</u> , D. K. Efimov, K. Miculis, E. Stegenburgs, M. Bruvelis, A. Cinins, N. N. Bezuglov, I. I. Ryabtsev, A. Ekers	Manifestation of Multiple Dressed States in Hyperfine Levels of Na: the Death of Dark and Some Bright Components in Autler-Townes Spectra

10:45-11:15 Coffee break

### **Oral Session 3 – Scientists Repatriated from Abroad by FP7 FOTONIKA-LV Project**

#### **Chair A. Ubelis**

*Auditorium at 4<sup>th</sup> Floor*

- |    |             |   |  |
|----|-------------|---|--|
| 10 | 11:15-11:30 | <u>J. Alnis</u> ,<br>I. Brice, J. Rutkis,<br>I. Fescenko, C. Andreeva | Measuring Rubidium Optical Transitions with a Femtosecond Frequency Comb   |
| 11 | 11:30-11:45 | V. Beldavs  | The International Lunar Decade: A Giant Leap Forward in Understanding the Moon and Opportunities for its Development |
| 12 | 11:45-12:00 | J. Blahins  | Transfer of Emerging Technologies by LU Association FOTONIKA-LV  |
| 13 | 12:00-12:15 | <u>I. Fescenko</u> ,<br>A. Weis                                       | Visualizing Magneto-Optical Effects by Bright and Dark Atoms   |
- 12:15-13:15 Coffee break, Lunch break

### **Oral Session 4 – SECONDMENT Visits within FP7 FOTONIKA-LV Project**

#### **Chair I. Eglitis**

*Auditorium at 4<sup>th</sup> Floor*

- |    |             |   |   |
|----|-------------|---|---|
| 14 | 13:15-13:30 | I. Eglitis                                | Secondment visit in Moletai Observatory, Institute of Theoretical Physics and Astronomy, Vilnius University |
| 15 | 13:30-13:45 | K. Salmins, J. del Pino,<br>E. Hoffman    | Modernization of SLR Station Riga and Future Prospects  |
| 16 | 13:45-14:00 | J. Blahins, A. Apsitis,<br>V. Silamikelis | Results on Secondment Visits to Belarus and Crimea  |

### **Oral Session 5 – Reports of Institutes on Impact from FP7 FOTONIKA-LV project**

#### **Chair A. Atvars**

*Auditorium at 4<sup>th</sup> Floor*

- |    |             |   |   |
|----|-------------|---|---|
| 17 | 14:00-14:15 | I. Eglitis  | Overview of Impact of the FOTONIKA-LV Project on the Institute of Astronomy   |
| 18 | 14:15-14:30 | G. Silabriedis,<br>J. Balodis, A. Zarins,<br>A. Rubans, I. Janpaule,<br>D. Haritonova, I. Lasmane | Overview of Impact of the FOTONIKA-LV Project on the Institute of Geodesy and Geoinformatics  |
| 19 | 14:30-14:45 | J. Alnis  | Overview of Impact of the FOTONIKA-LV Project on the Laboratory of Quantum Optics, Institute of Atomic Physics and Spectroscopy   |
| 20 | 14:45-15:00 | A. Ubelis   | Overview of Impact of the FOTONIKA-LV Project on the Laboratory of Atomic Physics, Atmospheric Physics and Photochemistry, Institute of Atomic Physics and Spectroscopy |

Coffee break 15:00-15:30

## POSTER SESSION 15.30-17.00

Chair A. Atvars, assistant D. Ubele

Auditorium at 1<sup>th</sup> Floor

- P1 C. Andreeva, A. Cinins, A. Ekers, D. Tretyakov, V. Entin, E. Yakshina, I. Beterov, A. Markovski, I. Ryabtsev Controlling the Interaction of a Few Cold Rb Rydberg Atoms by Radio-Frequency Assisted Förster Resonances
- P2 A. Atvars TRIZ Tools for Inventive Problem Solving
- P3 A. Atvars, V. Beldavs Report on the Conference “The Next Giant Leap: Leveraging Lunar Assets for Sustainable Pathways to Space”, Hawaii Island, USA, November 9-13, 2014
- P4 V. Beldavs Cooperation in Space Technologies with Africa
- P5 V. Beldavs FOTONIKA-LV and the International Year of Light
- P6 I. I. Beterov, A. Markovski, S. M. Kobtsev, E. A. Yakshina, V. M. Entin, D. B. Tretyakov, V. I. Baraulya, I. I. Ryabtev A Simple Cost-effective Digital System for Tuning and Long-Term Frequency Stabilisation of a CW Ti:Sapphire Laser
- P7 N. N. Bezuglov, T. Kirova, A. Ekers, N. Porfido, S. Birindelli, F. Tantussi, F. Fusco Nonlinear Optical Pumping of a Slow and Cold Cs Beam
- P8 J. Blahins, A. Apsitis, S. Gorbatov, F. Pliavaka, K. Gross Concept Project of Microwave Plasma Torch Based 3-D Printer for Hard Melting Materials
- P9 I. Brice, J. Alnis GNSS More than a Tool for Navigation
- P10 K. A. Gross, A. Ubelis, D. Ubele The FOTONIKA -LV Project “An international Network on New Strategies for Processing of Calcium Phosphates”, FP7-PEOPLE-2013-IRSES, g/a 612691 (01.12.2013-30.11. 2017)
- P11 D. Haritonova Earth Tide Observations and Analysis Methods
- P12 D. K. Efimov, N. N. Bezuglov, K. Miculis, A. Ekers Penning Ionization of a Non-symmetrical Atomic Pair in a Rydberg Gas
- P13 J. Rutkis, J. Alnis Dust Particle Counting in Ambient Laboratory Air
- P14 A. Treijs, J. Vjaters, M. Abele, E. Rutkovska, Development of Laser Beams Coaxial Direction Active Stabilization on Interoperable Remote Platforms
- P15 A. Ubelis, M. Abele, J. Vjaters, K. Salmins, I. Eglitis, K. Michulis, V. Silamikelis The FOTONIKA-LV Project “NOCTURNAL ATMOSPHERE”, FP7-PEOPLE-2011-IRSES, g/a 294949 (01.02.2013-31.01.2017)

- P16 R. Viter, M. Bechelany,  
N. Starodub, D. Erts,  
V. Smyntyna, R. Yakimova,  
V. Khranovskyi,  
L. Dubovskaya, D. Sodzel,  
A. Ubelis  
The Main Deliverables of BIOSENSORS-  
AGRICULT Project, FP7-PEOPLE-2012-IRSES,  
Contract No. 318520, (2012-2016)
- P17 A. Zarins, A. Rubans,  
I. Janpaule. , D. Haritonova,  
G. Silabriedis, A. Barzdis  
Project of Multi-purpose Optical Tracking Device –  
Progress Report
- P18 A. K. Saxena, J. Blahins,  
A. Apsitis  
Study on Collisions of Atomic Clusters with  
Charged Particles
- P19 N. Naumova, A. Naumov,  
A. Smertenko  
Mitochondrial Bio-sensing with Biomolecular  
Barkers: Optical Microscopy and Flow Cytometry vs.  
Bioelectronics Approach
- P20 A. Atvars  
Horizon 2020 SME Instrument for SMEs in Latvia
- P21 K. Salmins, S. Horenykov,  
I. Liubich, M. Medvedsky,  
S. Melkov, V. Zhaborovsky  
Scientific Collaboration with Ukrainian SLR network
- P22 V. Naumov, P. Smertenko,  
G. Olkhovik, V. Stepanov  
Differential Approach and Radiation Amplification  
Factor