

Quantum Optics Laboratory

Institute of Atomic Physics and Spectroscopy, University of Latvia, Riga Skunu str. 4



Research

- Optical frequency metrology with a femtosecond optical frequency comb.
- Development of optical frequency standards and comparison with radio-frequency standards.
- Development of ultra-stable resonators for laser stabilization.
- Free-space optical frequency transfer and distance measurements.
- Global network of sensors, Internet of Things.

People

Dr. **Janis Alnis**, group Leader

<https://scholar.google.lv/citations?user=kYt72h8AAAAJ>

Dr. **Ilja Fescenko**

http://www.researchgate.net/profile/Ilja_Fescenko

https://scholar.google.lv/citations?user=nLTU_OUAAAAJ

Dr. Christina Andreeva, Visiting scientists, Bulgaria

Dr. Asparuh Markovski, Visiting scientist, Bulgaria

Dr. Nikolay Bezuglov, Visiting scientist, Russia

MSc Inga Brice, PhD student:

MSc Aigars Apsitis, technical assistance

Jāzeps Rutkis, physics bachelor student

Collaborations

- **Precision spectroscopy of atomic hydrogen** and optical frequency distribution over fiber link. Prof. T. Hansch group at MPQ, Garching, DE.
- **Positronium spectroscopy**. Dr. P. Crivelli group at ETH Zurich, CH. Preparing a 486 nm laser and 500 W build-up cavity. Building tellurium molecular reference in Riga for optical frequency measurements.

- **Air quality measurements** in laboratory and atmosphere, **benzene, Hg, dust, CO₂**.
Prof. M. Knite at Riga Technical University, Dr. A. Ubelis, Dr. A. Skudra LU ASI.
- **Coherence preserving ion crystals and spectroscopy using semiconductor diode lasers**.
Prof. S. Svanberg, Prof. S. Kroll, Lund University, Sweden
- **Laser spectroscopy of atoms, molecules, NV magnetometry**.
Prof. M. Auzins and Prof. R. Ferber, Riga Laser Centre, University of Latvia.
- **Spectroscopic imaging of magnetic field**. Prof. A. Weiss Fribourg university. CH.
- **Internet of Things technologies**. Exploring new approaches for internet connectivity and global control.
Electronics companies Farnell, Element14, Texas Instruments.

Financing

We acknowledge support by REGPOT project "Unlocking and Boosting Research Potential for Photonics in Latvia – Towards Effective Integration in the European Research Area" (FOTONIKA-LV FP7-REGPOT-CT-2011-285912), 2012-2015

Precision measurement system of light frequency



