VITALII KHODNEVYCH

PhD in physics

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SUMMARY

- Forward-thinking research engineer with a strong background in physics and electronics, leading to the successful development of state-of-the-art optronic instruments and numerical models.
- Strong skills in the design and development of optoelectronic devices: optics and detection, digital and analog electronics, numerical simulation, and embedded engineering.
- Creative and self-motivated individual with easy integration in a multicultural environment with a unique combination of detail-oriented mindset, driven personality, analytical skills, and proven ability to meet tight deadlines by working in a fast-paced work environment leading to successful completion of various complex problems in a short time and with excellent quality.

WORK EXPERIENCE

Research engineer in optics

IRT Saint Exupéry

2020 - now, CDI Biot, France

Activities are dedicated to the development, validation, and test of a static Fourier spectro-imager for the detection and quantification of anthropogenic gases in the Earth's atmosphere that includes:

- Stray light model development, analysis (FRED, MatLab), and characterization. Stray light correction algorithms development.
- Radiometric and first-order optical analysis. Optical components and system design with Zemax.
- Analytical and numerical models development: forward (optical) and inverse models corresponding to L1-L2 processing.
- Characterization and laboratory validation tests (TRL4) of the instrument.

PhD student

Observatoire de la Côte d'Azur, ARTEMIS lab

2017 - 2020 Nice, France

- My PhD was dedicated to studying the impact of coherent scattering on the interferometric measurements of the future gravitational observatory LISA.
- During PhD I built two state-of-the-art interferometric instruments (at $1.06\ \mu m$ and $1.55\ \mu m$) for backscattering measurements (including free space component design and signal processing routines), resulting in a poster at ICSO2018 and a talk at Optro2020 conferences.
- Beside this I published a paper on how to calculate stray light caused by micrometeoroids impact., generalize Harvey-Shack's theory for the case of coherent scattering and develop a new contamination control system for a clean room, which has been used in Observatory Cote d'Azur since the summer of 2019.

EDUCATION

Master 2 Grands Instruments
(Major de promotion)

Université Paris-Saclay

2016 - 2017 Paris, France

Bachelor and Master in Nuclear and High Energy Physics

Taras Shevchenko National University of Kyiv

2010 - 2016 Kyiv, Ukraine

TRAININGS

- International school on space optics, 2019 (Rome, Italy)
- Laser security training at CERLA, 2019 (Lille, France)
- Gathering of the Federation of Plasma and Fusion Sciences Training, 2017 (Bordeaux, France)
- Four internships at Laboratoire de l'Accélérateur Linéaire in Orsay (2014-2017)

AWARDS

- Master scholarship 2016: Bourses du Gouvernement Français and Université Paris-Sud
- Doctoral scholarship 2017: Thales Alenia Space and PACA region
- Finalist of Pierre Laffitte prize in 2019.

PUBLICATIONS

- *Stray light estimates due to micrometeoroid damage in space optics, application to the LISA telescope*, SPIE JATIS, 2020 DOI
- Full list

SKILLS

C/C++ | Python | MATLAB | FRED | Zemax | SolidWorks

LANGUAGES

Ukrainian | English (C1) | French (B1)