Dmytro **Strelnikov**

Research Fellow · Scientific Programmer

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Education

Ilmenau University of Technology

Ilmenau, Germany

Doctoral student

2019 – now

- Doctoral work in spectral theory of Hamiltonian integral systems.
- Thuringian State Graduate Support for particularly capable graduates.

Vasyl Stus' Donetsk National University

Vinnytsia, Ukraine

MSc. in Mathematics

2014 – 2015

- Major in functional analysis and theory of linear operators.
- Diploma with honors.

Donetsk National University

Donetsk, Ukraine

BSc. in Mathematics

2010 – 2014

- Major in analysis and function theory.
- Diploma with honors.

Experience

Chemnitz University of Technology

Chemnitz, Germany

Research Fellow

2019 – 2022

- Developed joint scientific and technical project of Ilmenau University of Technology and Chemnitz University of Technology *Simulation Based Optimization of the Time-Dependent Pulse Power for Laser Beam Welding of Aluminum Alloys in Order to Avoid Hot Cracks*, funded by DVS Research (the research association of German Welding Society), codename `OptiPuls`.
  - Formulated and studied an optimal control problem for a single-spot pulsed laser beam welding problem whose objective aims at reducing material hot cracking.
  - Developed a Python package `optipuls` which implements the mathematical model of pulsed laser beam welding and provides a bundle of domain-specific abstractions, simulation and optimization routines (based on FEniCS for solving PDEs).
  - Prepared docker images and GitLab CI pipelines for reproducable computations.
  - Conducted synchronized numerical-laboratory experiments on single spot pulsed laser welding with the Department of Production Technology, Ilmenau University of Technology.

Ilmenau University of Technology

Ilmenau, Germany

Research Fellow

2019

- Conducted preliminary research on the draft project *Simulation Based Optimization of the Time-Dependent Pulse Power for Laser Beam Welding of Aluminum Alloys in Order to Avoid Hot Cracks*.

Vasyl Stus' Donetsk National University

Vinnytsia, Ukraine

Junior Research Fellow

2018 – 2019

- Participated in research project *Properties of singular solutions of differential equations, spectral analysis of difference systems and modeling of nonlinear processes*.

National Pedagogical Dragomanov University

Kyiv, Ukraine

Junior Research Fellow

2016 – 2019

- Participated in research project *Direct and inverse spectral problems for differential and difference operators*.
- Participated in research project *Modeling, analysis, and approximation theory toward applications in tomography and inverse problems*, by Volkswagen Foundation.
- Participated in the scientific and technical joint project of Ministry of Education and Science, Ukraine and Federal Ministry of Education and Researchm Germany BMBF, *Mathematical Models for Bio-Medical Problems*.

Skills

Science	Functional Analysis, Linear Operator Theory, Mathematical Physics, Mathematical Optimization
Programming	Python scientific stack (experienced)
DevOps	Docker, Docker Compose, GitLab CI, NixOS
Languages	Ukrainian (native), Russian (native), English (fluent), German (A2)