
Sergei Kladov

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Profile

I am a UChicago Physics PhD student and an accelerator science physicist, currently working on the UChicago test stand (electron gun) for IOTA. My main specialization is beam dynamics, both single-particle and collective. My interests also relate to programming (see details on my website) and machine learning. My supervisors are Young-Kee Kim and Sergei Nagaitsev.

Current Work

The University of Chicago

September 2022 – Present

PhD student. On-campus employment.

- Commissioning of the test stand for a low-energy electron gun.

Education

MSc in Physics. Narrow specialization: Accelerator science

September 2020 – June 2022

Novosibirsk National Research State University, Novosibirsk, Russia

GPA – 4.9/5

BSc in Physics. Narrow specialization: Accelerator science

September 2016 – June 2020

Novosibirsk National Research State University, Novosibirsk, Russia

GPA – 4.88/5

Work and research experience

Budker Institute of Nuclear Physics

September 2017 – August 2022

Senior assistant on the VEPP-2000 e+e- collider

September 2020 – August 2022

- Develop theoretical treatment of coherent beam dynamics in machines with strong coupling (beam-beam effects, feedback systems)
- Develop Java program for beam dynamics modeling
- VEPP-2000 operator-physicist
- Awarded by S. Popov and G. Budker scholarships (different years)

Laboratory assistant on the VEPP-2000 e+e- collider

January 2019 – July 2020

- Develop theoretical treatment of nonlinear betatron dynamics in machines with strong coupling in the simultaneous presence of different resonances
- VEPP-2000 operator-physicist
- Awarded by S. Popov scholarship

Laboratory assistant on electron beam welding machine

June 2018 – December 2018

- Create optical commutator using Arduino
- Operate electron beam welding machine

Assistant researcher of accelerator targets

September 2017 – December 2017

- Simulate the heating of an accelerator target by a passing beam using COMSOL

International summer schools

1. Machine Learning Algorithms for the prediction of ASTRA Output, DESY, PITZ group, 2021.

Skills and interests

Computer competence

Programming languages: Java, Python, C#, HTML, CSS, JavaScript, C++;

Scientific, industrial software: Mathematica, COMSOL, Arduino, Processing, Fritzing;

Other libraries, frameworks and software: Unity, pyTorch, Java Spring, LibGDX;

Languages

Russian: native;

English: advanced level (IELTS 7.0)

Other interests

Machine learning, game development.

Conferences

1. S.A. Kladov and E. Perevedentsev, "Nonlinear Coupling Resonances in X-Y Coupled Betatron Oscillations Near the Main Coupling Resonance in VEPP-2000 Collider", in *Proc. IPAC'21*, Campinas, SP, Brazil, May 2021, pp. 863-865.
2. S.A. Kladov and E. Perevedentsev, "Two-Stream Effects in Coherent Beam-Beam Oscillations in VEPP-2000 Collider Near the Linear Coupling Resonance", in *Proc. IPAC'21*, Campinas, SP, Brazil, May 2021, pp. 866-869.
3. S.A. Kladov, "Study of nonlinear effects near the main coupling resonance in the VEPP-2000 collider", International Scientific Student Conference (ISSC), Instrumental methods and technique of experimental physics, 2020.
4. M.V. Timoshenko *et al.*, "VEPP-2000 Collider Complex Operation in 2019-2021 Runs", in *Proc. RuPAC'21*, Alushta, Russia, Sep.-Oct. 2021, pp. 28-33.
5. D.B. Shwartz *et al.*, "Round Colliding Beams: Successful Operation Experience", in *Proc. IPAC'21*, Campinas, SP, Brazil, May 2021, pp. 1326-1329.

Publications in scientific journals
