# Sergei Kladov

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## Profile

I am an accelerator science physicist, currently working on the VEPP-2000 $e^+e^-$ collider (BINP). My specialization is beam dynamics, both single-particle and collective. My interests also relate to programming (see details on my website) and machine learning. I am currently looking for a strong doctoral program with research related to these topics, or maybe to the new ones for me (the main thing is that the study is interesting), which are able to expand my horizons. International experience is favorable.

## Current Work

**Budker Institute of Nuclear Physics**                              September 2020 – Present

Senior assistant on the VEPP-2000 $e^+e^-$ collider.

- Develop theoretical treatment of beam dynamics in machines with strong coupling (collective effects: wake-fields, two-stream effects; feedback systems)
- Develop Java program for such dynamic modeling
- VEPP-2000 operator-physicist
- Awarded by S. Popov and G. Budker scholarships (different years)

## Education

**MSc Physics in accelerator science**                              September 2020 – Present

Novosibirsk National Research State University, Novosibirsk, Russia

GPA – 4.8/5

**BSc Physics in 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 – July 2020

<u>Laboratory assistant on VEPP-2000</u>                              June 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

<u>Laboratory assistant on electron beam welding machine</u>                              June 2018 – December 2018

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

<u>Assistant researcher of accelerator targets</u>                              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, LibGDX, pyTorch, Scikit-learn, Spring;

Completed a Deep Learning university course.

**Languages**

Russian: native;

English: advanced level (IELTS ?.?)

**Other interests**

Machine learning, game developing.

## Conferences

1. Sergei K., Evgeny P., "Nonlinear coupling resonances in X-Y coupled betatron oscillations near the main coupling resonance in VEPP-2000 collider", IPAC'21, 2021.
2. Sergei K., Evgeny P., "Two-stream effects in coherent beam-beam oscillations in VEPP-2000 collider near the linear coupling resonance", IPAC'21, 2021.
3. Sergei K., "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.

## Publications

1. Two poster publications in IPAC'21 (see conferences). It is planned to publish them in the "Physical Review Accelerator and Beams" or the "Nuclear Instruments and Methods in Physics Research".
2. D. Shwartz et al., "Round colliding beams: successful operation experience", IPAC'21, 2021.