

CV of Dr. Dmitry Kolker, associate professor of NSTU, physical department



First Name: Dmitriy

First Name: Kolker

Born: June 7, 1968, Novosibirsk (Russia)

Marital status: Married

Home address: 219-185, Zorge str. Novossibirsk, Russia, 630106 Ph:
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Current position: Associate professor of Novosibirsk State Technical University,
Senior Scientist of Institute of Laser Physics SB RAS

Scholarship: Performed at the Russian school of Novosibirsk, until 1983 and
music college (piano and organ) 1983-1987.

Undergraduate education in physics: After military service (Krasnoyarsk)
performed at the Technical University of Novosibirsk, from 1990 to 1995 Master
degree in physics specialty: Solid state physics and semiconductors.

Last Diploma: PhD Dissertation title : Frequency standard at 732 nm based on
hyperfine component of molecular iodine for precision spectroscopy of Muonium.
ILP SB RAS, 4.12.2001 (leader Dr. Yu. Matuygin, Ac. S.N.Bagayev)

Professional skills:

Optical Metrology (frequency metrology, frequency standards, precision
measurements, laser phase/frequency stabilization, statistical noise analysis);
Laser physics & Quantum Electronics (gas lasers, solid state lasers including
semiconductors);

High resolution laser spectroscopy of atoms and molecules;

Diode lasers;

Linear and Nonlinear optics (experimental: frequency conversion in SFG,
DFG, optical parametric amplification and oscillation, QPM devices);

Optical wavemeters based on interferometers, spectrometers.

Languages:

Russian;
English (fluently spoken and written);
French (good notions).

Hobbies:

- 1. Classical music, professional piano and organ player;**
- 2. Organbuilding and organ tuning;**
- 3. Cars.**

Teaching/training activities:

1999-2001 Lecturer and implementation of a practical training lab in optics. Novosibirsk State Technical University;
2000-2001: Implementation of a practical training lab in lasers. Novosibirsk State University;
1999 -2001: Supervisor of two Master graduating students (2 years duration each) in Novosibirsk State Technical University to experimental and theoretical work related to their thesis.
2007, Associate professor of NSTU, Physical department

Summary of scientific activities:

1995 Graduated the Department of Physics and Technology of Novosibirsk State Technical University on specialty Solid state physics and semiconductors.
1995 -1997 I started to work at the Laboratory of Laser Frequency Synthesis and Measurement of the Institute of Laser Physics (ILP SB RAS) as a research officer. I worked on development and investigation of the frequency-stabilized femtosecond Ti:S laser, extended cavity diode lasers, tunable cw Nd:YAG laser and stabilized CO₂ lasers for metrological applications. Also, I worked on nonlinear optics as second harmonic generation, difference frequency generation, sum frequency generation on different nonlinear crystals for metrology application.
1997-2000 Postdoc student in ILP SB RAS. I was a participant of international program "Spectroscopy of Muonium" in 1995-1998 in collaboration with Appleton Laboratory (Oxford UK). As a research team member I took part in building one of the first compact transportable femtosecond optical clocks. I experimentally investigated nonlinear interaction of ultrashort laser pulses with special optical fibers (highly nonlinear, tapered photonic)
2000-2002 I was as a scientific leader of project for young scientists "Femtosecond optical clock based on He-Ne/CH₄ standard" and I awarded of Lavrentyev medal SB RAS.
2001 I received the Ph.D. Degree in physics at the Institute of Laser Physics.
2002-2004 Postdoctoral stage in Observatoire de Paris, BNM-SYRTE.
During this period I took part in project for Sr⁺ spectroscopy in femtosecond

group, for development and investigation divide by 3 self-phase locked OPO based on PPLN crystal (group of Dr. J.J.Zondy).

2004 Stage in MIT Cambridge (RLE) in frame of France-MIT contract for development of 3:1 OPO (group of F.N.C.Wong and J.Shapiro).

2005 April-July. I was invited in INM-CNAM (Paris) as visiting scientist for development self-reference femtosecond laser in frame of project Ag+ spectroscopy.

2005-2006 Senior physicist at the ILP SB RAS since 1995, Researcher in Angstrom LTD company (Russia).

2006 June-December. Visiting scientist at Research Laboratory of Electronics MIT (USA), F.N.C.Wong group in frame of project self-phase-locked parametric oscillator with frequency divide by 3 pumped at 532 nm.

2007 February, Novosibirsk State Technical University, Physical department, associate professor, preparing of habilitation thesis. Institute of laser Physics, senior scientist.

2007, March Stipendium Max-Born Institute (Germany)

2008, DAAD stipendium "Mikhail Lomonosov"

2008, supervisor of DAAD summer school "Modern problem of Laser technology"

2009, DAAD stipendium "Mikhail Lomonosov"

2009, supervisor of DAAD summer school "Lasers and Nonlinear optics"

2010, Invited presentation at Laser Optic 2010

May 2010, submission of Habilitation These for obtaining of professor position

2010, Collaboration with Pisa University (Laser gyroscope) in frame of interuniversity project

2011 Collaboration with "Special Technology" LTD

2011 DAAD stipendium "Mikhail Lomonosov"

My other current interests are related to experimental and fundamental aspects of optical parametric oscillators subjects to resonantly enhance cascaded nonlinear processes (self-phase locking, ultra-short pulse generation for extreme nonlinear optics, optical transverse pattern formation, quantum signature of competing nonlinearities). I am also currently involved in a team project of construction of an optical clock based on laser-cooled atomic strontium, and the development of a femtosecond laser clock based on a Kerr-lens mode-locked Ti:Sa laser or a Cr:ZnSe laser.