

CURRICULUM VITAE

PERSONAL INFORMATION

Name **DREISCHUH ALEXANDER ALEXANDROV**

Phone

FAX

E-mail **ald@phys.uni-sofia.bg**

WWW **http://quantum.phys.uni-sofia.bg/dreischuh/index.html**

WORK EXPERIENCE

- Dates (from-to) **2004 -**
• Name and address of the employer ***Department of Quantum Electronics, Faculty of Physics, Sofia University***
• Type of activity or field of work **lecturer**
• Position ***Professor***
- Dates (from-to) **1998-2004**
• Name and address of the employer ***Department of Quantum Electronics, Faculty of Physics, Sofia University***
• Type of activity or field of work **lecturer**
• Position ***Associated Professor***
- Dates (from-to) **1994-1998**
• Name and address of the employer ***Department of Quantum Electronics, Faculty of Physics, Sofia University***
• Type of activity or field of work **lecturer**
• Position ***Head Assistant Professor***
- Dates (from-to) **1991-1994**
• Name and address of the employer ***Department of Quantum Electronics, Faculty of Physics, Sofia University***
• Type of activity or field of work **lecturer**
• Position ***Senior Assistant Professor***
- Dates (from-to) **1991**
• Name and address of the employer ***Scientific Research Division, Sofia University***
• Type of activity or field of work **constructor**
• Position ***Physicist***
- Dates (from-to) **1987**
• Name and address of the employer ***Institute of Industrial Cybernetics and Robotics, Bulgarian Academy of Sciences***
• Type of activity or field of work **constructor**
• Position ***Engineer-Physicist***

TEACHING EXPERIENCE

- Dates (from-to)
- School
- Faculty/Department
- Lecture courses

SCIENTIFIC PUBLICATIONS

EDUCATION AND TRAINING

• Dates (from-to)

- Name and type of education or training organization
- Main subjects / occupational skills covered
 - Title of qualification awarded
- National classification level (if applicable)

• Dates (from-to)

- Name and type of education or training organization
- Main subjects / occupational skills covered
 - Title of qualification awarded

• Dates (from-to)

- Name and type of education or training organization
- Main subjects / occupational skills covered

1991-

Sofia University “St. Kliment Ohridski”

Faculty of Physics / Department of Quantum Electronics

Electricity and Magnetism, Laser Physics Basics, Laser Physics – Types of Lasers, Linear and Nonlinear Optical Waves (updated – Optical Waves in Linear and Nonlinear Media), Nonlinear Optical Waves and Solitons, Optical Communication Networks, Introduction to the System LabView, Quantum Electronics Basics (practical training; updated – Laser Physics – Types of Lasers), Quantum Electronics Basics (short course), Optoelectronics and Integrated Optics (practical training), Electrical Engineering and Electronics Basics (practical training).

Author ID - SCOPUS 7003626585

Author ID - Web of Science R-7620-2016

ORCID ID: 0000-0003-4812-3520

RESEARCH GATE:

https://www.researchgate.net/profile/Alexander_Dreischuh

WWW: <http://quantum.phys.uni-sofia.bg/dreischuh/index.html>

1982 - 1987

Sofia University “St. Kliment Ohridski”, Faculty of Physics

Quantum Electronics and Laser Technique

Engineer-Physicist with a specialization in Quantum Electronics and Laser Technique

Higher education (M.Sc.)

1988 - 1991

Sofia University “St. Kliment Ohridski”, Faculty of Physics, Department of Quantum Electronics

Nonlinear Optics, Quantum Electronics, and Laser Technique

Doctor in Physics (Ph.D.)

2001

Sofia University “St. Kliment Ohridski”, Faculty of Physics, Department of Quantum Electronics

Thesis: “Self- and Induced-Phase Modulation in Third-order Nonlinear Media”

• Title of qualification
awarded

HEADED RESEARCH
PROJECTS FINANCED ON A
COMPETITIVE PRINCIPLE

Doctor of Physical Sciences (Dr.rer.nat.habil.)

1. „Nonlinear methods for generation, transmission, switching and deflection of coherent beams and pulses”, National Science Fund (Bulgaria) and Eureka Foundation, (Project № НИ-МВ-ТТ-1/1991г.).
2. „Nonlinear logic elements and schemes for parallel manipulation and transmission of optical information”, National Science Fund (Bulgaria) (Project № Ф-424/1992г.).
3. “Generation and interactions of phase dislocations in the wave fields of short optical pulses and beams”, National Science Fund (Bulgaria) (Project № Ф-1303/2003г.).
4. “Multiple-charged optical vortex solitons”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 247/1999г.).
5. “Dynamics and interactions of ring dark solitary waves: Methods for an effective control”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 316/2000г.).
6. „Nonlinear dynamics of spatial phase dislocations in photorefractive nonlinear media”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 150/2007г.).
7. „Dark beams with phase singularities in self-focusing nonlinear media”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 128/15.05.2009г.).
8. „Conference in Ultrafast and Nonlinear Optics 2009 (Ultrafast and Nonlinear Optics’2009)”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 118/15.05.2009г.).
9. „Generation of high-quality ultrashort laser pulses: Measurement and removal of the pulse front tilt of femtosecond pulses”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 080/08.04.2010г.).
10. „Generation of femtosecond supercontinuum with optical vortices: Experiment and numerical simulations”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 25/13.04.2011г.).
11. „Controlling the self-focusing of laser beams in photorefractive media by using singular beams: Experiments and numerical simulations”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 180/21.05.2013г.).
13. „Algebraic operations with topological charges of optical vortices: Experiments and comparison with analytical theory”, Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 178/12.05.2014г.).
14. „Linear and Nonlinear Femtosecond Photonics”, National Science Fund (Bulgaria) (Project № T02-10/2014г.).
15. “Far-field shaping and control of ordered structures of bright beams by using square lattices of optical vortices,” Scientific Research Fund of Sofia University “St. Kliment Ohridski” (Project № 80-10-158/2019).
16. Coordinator for the Faculty of Physics and member of the Administrative board of Project Center of Excellence “National center for/of mechatronics and clean technologies”, № BG05M2OP001-1.001-0008-C01. supported by the European Regional Development Fund within the OP “Science and Education for Smart Growth 2014 - 2020”

INTERNATIONAL PROJECTS

17. „Singular optics of polychromatic light”, funded by The Australian Research Council, Australia (Project LX0666552/2005).
18. „White-light interferometry using carrier-envelope phasemeters”, funded by LaserLab Europe (Project FSU-IOQ001751/2012).
19. Coordinator for the Faculty of Physics of Project NANOPHI within the framework of Erasmus Mundus Action 2 (2014г.-2018г.) of the European Commission (contract number 2013-5659/002-001).
20. „Realignment-free switching between interferometric and background-free mode of operation of an inverted field autocorrelator by using a vortex phase plate”, funded by LaserLab Europe (Project HIJ-FSU002531/2019).
21. “Generation of high harmonics by quasi-non-diffracting femtosecond Gauss-Bessel beams,” funded by LaserLab Europe (Project HIJ-FSU002844/2022).

PERSONAL SKILLS AND
COMPETENCES.
NATIVE LANGUAGE
OTHER LANGUAGES

BULGARIAN

GERMAN

- Reading EXCELLENT
- Writing EXCELLENT
- Conversation EXCELLENT

ENGLISH

- Reading EXCELLENT
- Writing EXCELLENT
- Conversation GOOD

RUSSIAN

- Reading EXCELLENT
- Writing GOOD
- Conversation GOOD

SPECIALIZATIONS

Technical University Graz, Graz, Austria (1996) ;
Fellow of the Alexander von Humboldt Foundation at Max Planck Institute (MPI) for Quantum Optics, Garching, Germany (1997-1998, 2000) ;
Fellow of the Max Planck Society at Max Planck Institute (MPI) for Quantum Optics, Garching, Germany (1999, 2000, 2001, 2002),
Scientific collaborator in the Institute of Optics and Quantum Electronics, Faculty of Physics and Astronomy, Friedrich Schiller University Jena, Germany (2009,2010,2011,2012,2016,2019,2020,2021, 2022).

SCHOLARSHIP

CEEPUS (Network A-21) (11.-12.1995);
Stipend of the Austrian Office for Academic Exchange (in the Technical University Graz, Graz, Austria, 01-06.1996);
Stipend Alexander von Humboldt Foundation at Max Planck Institute for Quantum Optics, Garching, Germany (01.1997-11,1998; 2000);
Stipend of the Max Planck Society at Max Planck Institute (MPI) for Quantum Optics, Garching, Germany (1999; 2000; 2001; 2002);
Stipend of the Australian National University (in the RSPHysSE - ANU, 10.-11.2004);
Stipend of the Australian Research Council (in the Australian National University, RSPHysSE - ANU, 06.-10.2006);
Stipend of the Australian National University (in the RSPHysSE - ANU, 11.-12.2007).

ORGANIZATIONAL SKILLS AND
COMPETENCES

Dean of Faculty of Physics (2011 -- 2019);
Head of the Department of Quantum Electronics, Faculty of Physics (2003 –2011, 2019 – present);
Member of the Scientific Commission in Physics and Astronomy of the Higher Testimonial Committee in Bulgaria (2004 -- 2006);
Vice-Chair of the Scientific Commission in Physics and Astronomy of the Higher Testimonial Committee in Bulgaria (2007 -- 2009);
Member of the Scientific Council for Radiophysics, Physical and Quantum Electronics of the Higher Testimonial Committee in Bulgaria (2010);
Member of the Faculty Council of the Faculty of Physics (2002 --);
Head of the Attestation Commission of the Faculty of Physics (2008 - 2011);
Member of the Scientific Council of the Institute of Electronics, Bulgarian Academy of Sciences (2005 – 2009, 2009 - 2013);
Chair of the Attestation Commission of Institute of Electronics, Bulgarian Academy of Sciences (2010);
Member of the Committee of Physics, National Science Fund, Bulgaria (2005-2010);
Chair of the Board of Directors of Bulgarian Journal of Physics (2011г.- present);
Member of the Council of scientists, Ministry of Environment and Water, Bulgaria (since 2018г.);
Coordinator of the Bulgarian participation in the NANOPHI Project, Erasmus Mundus Action 2 (2014-2018) of the European Commission (contract number 2013-5659/002-001).

ADDITIONAL INFORMATION

- o **Corresponding member of the Bulgarian Academy of Sciences**
- o **President of the Union of Physicists in Bulgaria (since 2020)**
- o **Member of the Union of Physicists in Bulgaria (since 1995)**
- o **Member of the Humboldt Union in Bulgaria (since 1999)**

Important scientific contributions in the last 25 years: First analyses on the generation of singular femtosecond beams (Opt. Lett. 29, 1942 (2004), J. Opt. Soc. Am. B 23, 26-35 (2006)), on the generation of high-order harmonics (Nature Physics 8, 743 (2012)) and coherent singular polychromatic light with such beams (Phys. Rev. Lett. 99 123901-4 (2007), Opt. Lett. 33, 1851 (2008), Opt. Express 16, 5991 (2008), ibid. 22, 11079 (2014), J. Opt. Soc. Am. B 33, 681 (2016)). First experimental demonstrations of ring dark solitary waves (Phys. Rev. E 52, 5517 (1995), Appl. Phys. B 62, 139 (1996), ibid. B 64, 429 (1997), Phys. Rev. E 66, 066611-7 (2002)), optical vortex lattices (J. Opt. Soc. Am. B 19, 550 (2002), Opt. Express 14, 2851 (2006)), multiple-charged optical vortex solitons (Phys. Rev. E 60, 6111 (1999), ibid. 60, 7518 (1999)), and fractional vortex dipoles (Appl. Phys. B 69, 107 (1999), ibid. 69, 113 (1999), J. Opt. Soc. Am. B 17, 2011 (2000)). Observation of attraction between dark solitons (Phys. Rev. Lett. 96, 043901-4 (2006)). Analysis of the formation of light bullets (IEEE J. Quant. Electron. QE-27, 2060 (1991)), nonlinear necklace and azimuthon beams (J. Opt. Soc. Am. B 34, pp. 801 (2017)), and algebraic operations with topological charges of optical vortices (Opt. Commun. 350, 301 (2015), ibid. 389, 203 (2017)).