Michael Vasilyev

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RESEARCH INTERESTS

Experimental and theoretical nonlinear, quantum and fiber optics and nanophotonics, with applications to high-capacity optical networking, novel optical amplifiers and photonic devices, all-optical signal processing, quantum information processing, ultra-sensitive measurements, etc.

EDUCATION

1999 Ph.D., Electrical Engineering
Northwestern University, Evanston, IL

1993 M.S., Optical Physics, *summa cum laude*
Moscow Institute of Physics and Technology (MIPT) and Lebedev Physics Institute (Russian Academy of Sciences), Moscow, Russia

APPOINTMENTS

2003–present Department of Electrical Engineering, University of Texas at Arlington, Arlington, TX
Distinguished University Professor (2020–present)
Full (2013–present), *Associate* (2009–2013), *Assistant* (2003–2009) *Professor*
Research in nonlinear, fiber, and quantum optics, and nanophotonics.

Summer 2003 Optical Physics Department, Bell Labs, Murray Hill, NJ *Visiting scientist*
Investigated Kerr nonlinearities in Si- and Ge-nanocrystal-doped glasses and waveguides.

2002–2003 U.S. Photonics, Belle Mead, NJ *Principal Member of Technical Staff*
Provided R&D solutions to industrial and government innovation projects.

1999–2002 Corning Inc., Photonic Research and Test Center, Somerset, NJ
Senior Research Scientist
Leader of research programs studying fibers, amplifiers and sub-systems for future ultra-long-haul communication systems and networks.

1994–1999 Northwestern University, Dept. of Electrical and Computer Engineering, Evanston, IL
Research Assistant
Experimental and theoretical work on parametric amplifiers and optical solitons.

1990–1994 Lebedev Physics Institute, Russian Academy of Sciences, Moscow, Russia
Researcher (1993–1994), Diploma Student (1990–1993)
Experimental and theoretical studies of a novel optoelectronic amplifier/oscillator.

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

- Associate Editor, OSA/IEEE Journal of Lightwave Technology (2014–2020).
- Chair (2018, 2023), Member (2015–17, 2021–24) of the Technical Program Committee (TPC), Optical Fiber Communication conference (OFC).
- TPC Member, Photonic Networks and Devices meeting, OSA Advanced Photonics Congress 2019–23.
- Organizer, Symposium "Photonic Integrated Circuits for Quantum Communication & Computing" and Panel "Wideband Optical Amplifiers for Datacenters, Hyperscale & Telecom Networks," OFC 2024.
- Organizer, Symposium "Quantum Information and Optical Communication Networks: Emerging Research Areas, Challenges and Opportunities," OFC 2023.
- Organizer, Workshop on Frequency Combs for Communications at the OFC 2017.
- Instructor, Optical Amplifiers Short Course at OFC 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024.
- Co-Chair, IEEE Summer Topical Meeting on Nonlinear-Optical Signal Processing (2014, 2015).
- Chair (2016–17), Member (2005–07 and 2013–15) of the TPC on Lightwave Communications and Networks for the Conference on Lasers and Electro-Optics (CLEO).
- Organizer, Symposium on Optical Signal Processing with Phase-Sensitive Amplifiers at CLEO 2016.
- TPC Member (Nonlinear Frequency Generation & Conversion), SPIE Photonics West, 2014–2019.

- TPC Member, Frontiers in Optics / Laser Science Meeting 2016–2017.
- Primary Guest Editor for special "Nonlinear-Optical Signal Processing" issues of the IEEE Journal of Selected Topics in Quantum Electronics (May–June 2008 and March–April 2012).
- Chair, Quantum Optics TPC for Frontiers in Optics / Laser Science Meeting 2007, 2008.
- Vice-Chair, Quantum Optics TPC for Frontiers in Optics / Laser Science Meeting 2005, 2006.
- Organizer of "The Rise of Quantum Telecom" symposium at FiO 2008.
- Organizer of "Nonlinear and Quantum Optics in Micro- and Nanostructures" symposium at FiO 2006.
- International Advisory Committee Member for International Conference on Fiber Optics and Photonics, "PHOTONICS – 2010."
- International Program Committee Member for IASTED International Conferences on Wireless and Optical Communications (WOC 2006–2009).
- TPC Member for the OSA conference on Optical Amplifiers and their Applications 2002–2004.
- Member of Nanotechnology Group for Texas Governor's State Strategy on Advanced Technology.
- Institute of Electrical and Electronics Engineers, Photonics (LEOS) and Communications Societies:
  - Senior Member of the IEEE;
  - Co-Founder, Chair (2007–2015) and Vice-Chair (2006) of the Fort Worth LEOS Chapter.
- OPTICA (formerly the Optical Society or OSA):
  - 2014–present, Fellow of the OSA;
  - 2019–present, founder, Board of Directors member of the Optical Society of North Texas;
  - 2004–present, faculty advisor for the OSA Student Chapter at the UTA;
  - 2006–08, Chair (2004–06, Vice-Chair), Quantum Optics Techn. Group, Quantum Electron. Div.;
  - 1998–1999, President of the OSA Student Chapter at Northwestern University;
  - 1998, Principal organizer of the *2nd Midwest Regional Meeting of OSA Chapters*.
- International Society for Optics and Photonics (SPIE):
  - 2020–present, Fellow of the SPIE.
- Reviewer for Science, Nature Photonics, Nature Communications, Nature Electronics, IEEE PTL, JLT, Optics Letters, Optics Express, J. Optical Networking, JOSA B, Optics Comm., J. Modern Optics, etc.
- Reviewer: NSF panels (Mar.'05, Feb.'06, Dec.'08, May'10, March'15, March'19, May'21, April'22); DoE SBIR; Science Foundation Ireland; EU Horizon 2020 and EU Horizon Programs.

PUBLICATIONS / PRESENTATIONS / PATENTS

- 66 refereed journal papers, 190+ conference papers; 3 book chapters; 10 granted U.S. patents.
- 49 invited talks at international research symposiums, including OFC, FiO, and SPIE meetings.
- Over 2800 citations, *h*-index = 27.

AWARDS / FUNDING

2004–2023 Cumulative research funding of $4.8M.
2021 Ph.D. student A. Shamsshooli receives N. Stelmakh Outstanding Student Research Award.
2020 Member of the UTA Academy of Distinguished Scholars.
2020 Fellow of the International Society for Optics and Photonics (SPIE).
2019 UTA Outstanding Research Achievement or Creative Accomplishment Award.
2016 Ph.D. student L. Lu named semi-finalist of Corning Award at OFC 2016.
2015 Ph.D. student L. Lu named semi-finalist of Theodore Maiman Award at CLEO 2015.
2014 Ph.D. student L. Lu named Best Student Paper finalist at the IEEE Summer Topical Meeting.
2014 Fellow of the Optical Society (OSA).
2008 DARPA Young Faculty Award.
2008 UTA College of Engineering Research Excellence Award.
2007 Best Student Paper Award at Frontiers in Optics conference by Ph.D. student P. G. Patki.
2007 UTA College of Engineering Research Excellence Award.
2006 UTA College of Engineering Research Excellence Award.
2001 Corning Optical Fiber Division Award for "Ultimate Fiber Capacity" white paper.
2000, 2001 Corning Division Cash Awards for L-band EDFA and dispersion-managed fiber research.
2000–2002 4 Corning Recognition Awards for studies of optical propagation in fibers and amplifiers.
1998–1999 B. J. Martin Dissertation Year Fellowship.
1993 Best M.S. thesis award, Lebedev Physics Institute / Moscow Inst. of Physics & Technology.

EDUCATIONAL ACTIVITIES

2003–present Graduated 8 Ph.D. and 7 M.S. students.

2003–present Science Fair judge at DFW area elementary-, middle-, high-school, and district levels.

2017–present Instructor, Short Course *SC443 Optical Amplifiers: From Fundamental Principles to Technology Trends*, OFC conference (with S. Namiki, L. Li, P. Andrekson).

2003–present Course development and teaching: *EE6365 Advanced Fiber Transmission Systems: WDM System Design*; *EE5361 Fundamentals of Telecommunications*; *EE5386 Integrated Optics*; *EE5385 Nonlinear Optics*; *EE5388 Lasers*; *EE5380 / EE4380 Principles of Photonics and Optical Engineering*; *EE5389 Quantum Optics in Micro- and Nano-Cavities; EE3407 Electromagnetics; EE3317 Linear Systems.*

2000–2002 Supervised and trained a group of several PhDs and technicians.

1999–2002 Numerous Corning internal tutorials and workshops on amplifiers, systems, and networks.

Fall 1998 Course Instructor, *"Introduction to Applied Optics,"* senior undergraduate level.

1995–1997 Teaching Assistant and Lab Instructor, undergraduate- and graduate-level courses: *Electronic Circuits I and II, Applications of Electromagnetic Fields, Lasers and Coherent Optics, Nonlinear Optics.*

1994–1999 OSA outreach activities in Chicago-area elementary, middle, and high schools.

GRADUATED STUDENTS

Ph.D. students

1. Afshin Shamsshooli, "Nonlinear and quantum optics in few-mode-fibers," February 2021, currently at Cisco / Acacia Communications, Inc., Holmdel, NJ.
2. Subrata Das, "Nonlinear optics and bio-sensing with silicon nitride waveguides," December 2019, currently at Intel Corp., Hillsboro, OR.
3. Young Bong Kwon, "Reconfigurable all-optical de-multiplexing via spatial-selective frequency-up-conversion in $\chi^{(2)}$ multimode waveguide," May 2017; currently at Rockley Photonics, Pasadena, CA.
4. Lu Li, "Multi-channel all-optical signal processing," June 2016; currently at SubCom, Eatontown, NJ.
5. Sarath Samudrala, "Silicon nitride devices for nonlinear and quantum optics applications," May 2016; currently post-doctoral researcher at the Lawrence Berkeley National Lab, Berkeley, CA.
6. Lei Zhu, dissertation title "Active nanophotonics for quantum- and classical-optics applications," August 2012; currently at Meta, Milpitas, CA.
7. Muthiah Annamalai, dissertation title "Mode structure of a noiseless phase-sensitive image amplifier," December 2011; currently at Cornami, Campbell, CA.
8. Pallavi Govind Patki, dissertation title "Multi-wavelength all-optical 2R regeneration," August 2010; currently at Infinera Corp., Bangalore, India.

M.S. students

1. Mohan Giribabu, M.S. Thesis "Experimental investigation of spatial-mode-selective frequency up-conversion," November 2015.
2. Gokul Krishna Srinivasan, M.S. Thesis "Investigation of spectral properties of a DFB laser source," December 2012.
3. Sarath Chandra Samudrala, M.S. Thesis "Plasmonic nanostructures: fabrication and optical characterization," August 2008.
4. Muthiah Annamalai, M.S. Thesis "Optimization of coupling from a sub-wavelength metal nanoaperture to a Gaussian mode," August 2007.
5. Pallavi Govind Patki, M.S. Thesis "Recirculating-loop testbed for all-optical 2R regeneration," August 2006.
6. Sravanthi Thotakura, M.S. Thesis "Optical amplifiers for 10 Gb/s WDM recirculating-loop testbed," August 2005.
7. Kiran Bondalakunta, M.S. Project "High-power optical amplifiers," May 2005.