

Michael Shribak

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Education:

Optical Department of Moscow University of Geodesy and Cartography Moscow, Russia
PhD, Optics, 1991

Lviv State University, Lviv, Ukraine
MS, Physical Optics & Spectroscopy, 1982

Honors and Awards:

Honorable diploma for the first place in competition “The best works on consumer engineering created by young inventors and innovators” of Ministry of Radio Industry of the USSR, 1985.

Honorable diploma for the second places in competition “The best works on consumer engineering created by young inventors and innovators” of Ministry of Radio Industry of the USSR, 1986.

Honorary title and medal "The best young inventor of Ukraine", 1987.

Honorary title and medal “Inventor of the USSR”, 1988.

The Silver medal of the Exhibition of Achievement of National Economy of the USSR, 1989.

Positions:

Marine Biological Laboratory, Woods Hole, Massachusetts, USA, Staff Scientist I/ Assistant Research Scientist/Associate Research Scientist, 2000-present time

Tokyo University of Agriculture and Technology, Tokyo, JAPAN, Visiting Professor, 1998-1999.

Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus, Minsk, BELARUS, Senior Scientist, 1993- 2000.

LEMT (Lasers in Ecology, Medicine and Technology), Minsk, BELARUS, Senior Scientist/ Leading Scientist, 1993-2000.

Lviv Radio Engineering Research Institute, and then created on its base in 1987 Research Institute for Domestic Radio Electronics Equipment, Lviv, UKRAINE, Engineer/ Junior Scientist/ Scientist/ Senior Scientist, 1982-1993.

Current and previous research

Current research:

- Developing orientation-independent differential interference contrast (DIC) and combined DIC-Pol microscopy (US patent application #2005/0152030).
- Developing new algorithms and accessories for high sensitivity measurements of 2-dimensional and 3-dimensional birefringence distribution in polarization microscopy. Theory of polarization aberration in lens systems, techniques for measure and rectification of polarization aberration. (US patents #6924893, #7202950, US patent application #2006/00126068.).
- Instantaneous (real time) measurement of 2-dimensional birefringence distribution (US patent #7079247).
- Application of polarized microscopy for in-vitro fertilization.
- Interferometric technique for measuring two-dimensional dry mass distribution in living cell based on Jamin-Lebedeff and Mach-Zehnders microscopes.
- Theory of polarization fluorescence anisotropy of green fluorescence protein.

Previous research:

1) Polarization optics:

- A variety of methods and devices for measurement of birefringence. 10 of them are patented.
- Remote polarimetric sensors for angular displacement, temperature and inner stress. One method and one device are patented.

2) Optical disk storage systems: -A variety of optical disc storage systems, their servo systems, systems for suppressing optical noise, adjusting systems, techniques for measurement optical properties and geometry parameters of optical disks. 32 devices and techniques are patented

- Diffraction non-reciprocal optical element. It is patented.

3) Laser optics and devices:

- Theory for estimating the aberration balancing in laser diode optical systems based on Zernike's circle polynomials.
- Medical applications of lasers.
- Laser sights and pointers; various laser line generators; laser triangulation distance meter; stabilizer for space position of laser beam, etc.

4) Fiber optics:

- Various optical fiber sensors, including refractometer, birefringence sensor, temperature sensor, displacement sensor, level sensor etc.
- Systems for inputting a beam of high-power laser diodes and diode arrays into optical fiber or optical fiber array.
- Device for checking of optical fiber tip quality (combination of microscope and telescope schemes in one setup). It is patented.

Reviewer for:

Applied Optics, Optics Letters, Optic Express, IEEE: Transactions on Medical Imaging, Journal of Engineering Physics and Thermophysics.

Professional Societies:

Optical Society of America,
SPIE – The International Society for Optical Engineering,
Microscopy Society of America.
American Society for Cell Biology.