

# Ariel Bruner

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## **ACADEMIC BACKGROUND**

PhD. Physical Electronics, 2005

Electrical Engineering Department, Tel-Aviv University, Israel

*PhD. Thesis: "Non-Linear Optical Devices and Properties of Inverted Microstructures in LiTaO<sub>3</sub>". Advisors: Prof. Shlomo Ruschin, Tel Aviv University, Dr. David Eger & Dr. Moshe Oron, Soreq, NRC*

M.Sc. Physical Electronics (Cum Laude), 1998

Electrical Engineering Department, Tel-Aviv University, Israel

*M.Sc. Thesis: "Frequency Stabilization of Lasers near 1550 nm by Frequency Doubling and Locking to Atomic Transitions". Advisor: Prof. Ady Arie*

B.Sc. Physics, Faculty of Exact Science, 1994

Ben Gurion University of the Negev, Beer-Sheva, Israel

B.Sc. Materials Engineering, (Cum Laude), 1994

Materials Engineering Department, The Faculty of Engineering Sciences

Ben Gurion University of the Negev, Beer-Sheva, Israel,

*Graduation project: "Anti-Reflective Coatings for a Compact Blue Laser".*

*The research was held at the Solid State Physics Department, Soreq Nuclear Research Center.*

## **PROFESSIONAL POSITIONS**

- 2014-Present    Head of Specialty Fiber Group  
Israel National Center for Advanced Photonics (ICAP)/Soreq NRC
- 2012-2015:    Researcher, Project manager. Electro-Optics Division, Soreq NRC
- *OPGaAs waveguides*
  - *Optical ceramics for frequency conversion*
- 2010-2011:    Visiting research scientist with Prof. Byer group, Ginzton Lab.,  
Department of Applied Physics, Stanford University, CA, USA.
- *Transparent Nd:Y<sub>2</sub>O<sub>3</sub> ceramics for high power lasers.*
  - *Spectroscopy for precision clocks for future space missions (NASA's space mission of STAR (Space-Time Asymmetry Research)).*
- 2005- 2010:    Researcher, Project manager Electro-Optics Division, Soreq NRC
- *Yb doped silica lasing waveguides*
  - *Hollow core photonic bandgap waveguides*
- 1999-2004:    Researcher and Ph.D studies. Electro-Optics Division, Soreq
- *Non-Linear Optical Devices based on LiTaO<sub>3</sub>.*
- 1998:            Researcher, Electro-Optics Division, Soreq NRC
- *R&D of PPKTP crystals for nonlinear optical devices*
- 1995 -1997:    Teaching assistant  
Electrical Engineering Department, Tel-Aviv University, Israel
- *Course: Classical optics, for undergraduate students*
  - *Electronics Laboratory Instructor for undergraduate students*
- 1995 -1995:    Process Engineer- VISHAY Co. Israel
- *Electronic devices based on resistor chips*

## **ADVISING AND MENTORING**

2005-2010: Scientific supervisor and mentor of students from the Electrical Engineering Department, Tel Aviv University and from The Jerusalem College of Technology. The research studies were conducted at Soreq, labs

## **COMMITTEES**

Session chair & Member of the scientific committee of the following meetings:

2014: The 1st International Meeting on Fiber Lasers and Applications in Israel (IFLA), Bar-Ilan University

2017: The 2nd IFLA meeting which took place within the OASIS 6 conference, The International Conference and Exhibition on Optics and Electro-Optics 2017, Tel Aviv.

2019: Lasers and Applications Session chair, OASIS 7 conference, The International Conference and Exhibition on Optics and Electro-Optics. April 2019, Tel Aviv

## **HONORS / AWARDS**

2016: Outstanding Employee award, Solid state physics department, Applied Physics Division, Soreq, NRC

2007: Award for leading the project of Lasing waveguides, Applied Physics Division, Soreq, NRC

2003: Best Poster Presentation Award, Israel Vacuum society, Israeli Ministry of Science

2002: Aharon Katzir Scholarship, Israeli Ministry of Defense

1999: Outstanding Staff Award for the development of novel devices based on frequency converters

1994: Excellency Award for outstanding student, The Faculty of Engineering Sciences, Ben Gurion University

## **RESEARCH and AREAS of INTEREST:**

- Optical Fiber technology - Preform design, MCVD process, Fiber drawing and characterization.
- Specialty optical fibers and planar light-wave waveguides based on Silica glass and rare earth doping
- Nano-particle, planar deposition and sintering process of thick glass layers
- Hollow core photonic bandgap waveguides based on Chalcogenide glass and Omni-directional mirrors for non-linear applications
- Ferro-electric and III-V Semiconductors Frequency Conversion Devices: PPKTP, Stoichiometric LiTaO<sub>3</sub> (SLT) and Orientation-patterned GaAs (OPGaAs) waveguides based on MOCVD epitaxial growth
- High power laser systems based on frequency conversion of solid state and fiber lasers
- Transparent ceramics (Nd: 3, PMN-PT) for high power lasers and efficient frequency conversion: Nano-powders, material processing and characterization
- Materials development: Nano-powders, sintering processes microelectronics and optical characterizations
- Frequency Stabilization of Lasers for precision clocks and high resolution spectroscopy