Inbar Shafir

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Experience and skills

- 12 years' experience as a researcher at Soreq NRC
- Experimental research in solid state physics
- R&D of solid state devices including development of microelectronics processes, electrical and optical characterizations
 - Fabrication: Thin films deposition, Thermal Furnace CVD, RIE, photolithography, E-gun evaporation, RTP, polish, wafer bonding and chemical etching.
 - Characterization: Ellipsometry, FTIR, Photoluminescence, I-V and C-V.
- Device design and integration
- Conference academic organizer choosing the topics, selecting the speakers and session chair in the follow meeting: IR detectors conference on October 2019 at Soreq NRC

Employment

RESEARCHER (TENURE) | SOLID STATE PHYSICS DEPARTMENT, SOREQ NRC 2018-PRESENT

Solid state devices, Project manager

- Conducts research on various materials for extended short-wavelength infrared (e-SWIR) photodetectors. The project is in collaboration with SCD company and based on MBE epitaxial growth.
- The work comprises detailed study, process and comparative measurements of the electrical and optical properties.

2009-2018

Si high power semiconductor devices group – Technology leader

Leading the process and technology research.

- The work comprised of basic research, development, resolving problems of materials compatibility and microscopic defects, finally integration and realization of a Si based device.
- The activity also included examination of different technologies, procurement, adaptation of fabrication and analysis equipment

2014 - 2018

Safety manager of the Applied Physics Division.

• The activity included safety management in the Division. Responsibility for the assimilation of safety procedures and methods in the various laboratories, safety risk assessment and consultation to the division manager.

2005-2009

IR Detectors group

• The work comprised research, detailed study, microelectronics process development and characterization of IR detectors based on InAsSb, including experimental investigations on various material aspects.

Education

M.Sc. IN PHYSICAL ELECTRONICS | 2005-2008 | ELECTRICAL ENGINEERING DEPARTMENT, TEL-AVIV UNIVERSITY, ISRAEL

M.Sc. Thesis: "Optical and Electrical characterization of InAsSb Structures grown on GaSb for IR detectors" Advisor: Prof. Menachem Nathan (Tel Aviv University) and Dr. Moti Katz (Soreq)

B.Sc. IN PHYSICS AND MATERIAL ENGINEERING | 2002-2005 | BEN GURION UNIVERSITY OF THE NEGEV, BEER-SHEVA, ISRAEL

Research project " Resonant ultrasound spectroscopy measurement of the elastic constants of materials"

Military Service

OPERATIONS OFFICER IN THE ISRAELI AIR FORCE |1997-2000

Release rank: Lieutenant

Languages

- Hebrew native
- English fluent

Awards

Katzir fellowship for outstanding young scientists and potential defense R&D leaders: 2010-2017 Outstanding Employee, Solid state physics, Applied physics division, Soreq NRC 2010

Publications

- I. Shafir, D. Cohen-Elias, N. Snapi, O. Klin, E. Weiss, N. Sicron, M. Katz, "Improved Performances InAs/AlSb Type-II Superlattice Photodiodes for eSWIR with Ldiff of 2.4 μm and QE of 38 % at 300 K", Infrared Physics & Technology, 105, 103210, 2020
- D. Cohen-Elias, I. Shafir, T. Meir, O. Sinai, D. Memram, S.S. Shusterman, M. Katz, "Growth of InGaAs/GaAsSb Type II Superlattice for eSWIR Photodetector using MOCVD", Infrared Physics & Technology, 95, 199-102, 2018
- 3. D. Cohen-Elias, Y. Uliel, N. Cohen, I. Shafir, O. Westreich, M. Katz, "Short wavelength infrared pBn GaSb/AlAsSb/InPSb Photodetector", Infrared Physics & Technology, 85, 81-85, 2017
- D. Cohen-Elias, Y. Uliel, O. Klin, N. Snapi, E. Weiss, I. Shafir, O. Westreich, M. Katz, "Short wavelength infrared InAs/InSb/AlSb type-II superlattice Photodetector", Infrared Physics & Technology, 84, 82-86, 2017
- 5. Amit S. Kesar, Yaakov Sharabani, Inbar Shafir, Shoval Zoran, and Ariel Sher. "*Characterization of a drift-step-recovery diode based on all epi-Si growth*", IEEE Transactions on Plasma Science, vol. 44, NO.10, October 2016

- 6. Yaakov Sharabani, Inbar Shafir, Shoval Zoran, Arie Raizman, Ariel Sher, Yossi Rosenwaks, and David Eger. "*Validation of Fast Current Interruption Mechanism in Sub-Nanosecond High Voltage Switching Diodes*" IEEE Electron device letters, vol. 37, no. 8, August 2016
- A.S. Kesar Y. Sharabani, L. M. Merensky, I. Shafir, and A. Sher, "Drift-step-recovery diode characterization by a bipolar pulsed power circuit", IEEE Transactions on Plasma Science, vol. 40, pp. 3100-3104, 2012
- 8. I. Shafir, M. Katz, A. Raizman, A. Zussman and M.Nathan. "Suppression of leakage currents in InAsSb MWIR photodiodes by chemical treatment and illumination" Semicond. Soci. Technol. 25, 045004, 2010
- 9. 20 Internal Soreq technical reviews

Proceeding & Conference papers:

- 1. I. Shafir, D. C. Elias, N. Snapi, O. Klin, A. Glozman, E. Weiss, N. Sicron, M. Katz, "Material systems for extended SWIR photodetectors", IR detectors Conference 2019
- 2. I. Shafir, D. C. Elias, N. Sicron, M. Katz, N. Snapi, O. Klin, A. Glozman, E. Weiss, and G. Sarusi, *"e-SWIR high operating temperature p-n photodetectors"*, The 7th Internetional Conference and Exhibition on Optics and Electro Optics, OASIS 2019
- 3. D. Cohen-Elias, I. Shafir, T. Meir, N. Sicron, S.S. Shusterman, O. Westreich, Y. Uliel and M. Katz, *"Extended SWIR (1.7-3-mm) Detectors"*, Quantum Structure Infrared Photodetectors Conference, QSIP 2018
- 4. Y. Sharabani, I. Shafir, Shoval Zoran, A. S. Kesar, and D. Eger. "*Solid-state opening switches for pulsed power based on reverse recovery in diodes*" The 20th Israeli conference on plasma science and its applications, IPSTA, Tel aviv, Israel 2018
- L. M. Merensky, I. Shafir, Y. Sharabani, D. Eger, M. Oron, A.F. Kardo-Sysoev, D. Shmilovitz, A. Sher, A. S. Kesar, "Fast switching of drift step recovery diodes based on all epi-Si growth",2009 IEEE International Conference on Microwaves Communications, Antennas and Electronics Systems, COMCAS 2009, pp.1-4, Tel Aviv, 2009
- 6. I. Shafir, M. Katz, A. Raizman, A. Sher and M.Nathan. "Optical and electrical characterization of InAsSb structures grown on GaSb for IR detectors", The 26th IVS Annual conference, 2007