International Conference on Microwave & THz Technologies and Optoelectronics

IRPhE' 2022

Dedicated to 100-years jubilee of academician Emil Mirzabekyan

PROGRAM

Organized by: ***Institute of Radiophysics and Electronics, Armenian National Academy of Sciences***

Sponsored by:

INSTITUTE OF RADIOPHYSICS AND ELECTRONICS

Committee of Science of Armenia

September 27-29, 2022

Venue: **National Academy of Sciences, Marshall Baghramian Ave. 24, Yerevan, Armenia**

IRPhE' 2022 Main Topics:

- **Microwave devices, antennas, propagations and remote sensing**
- **THz technique, spectroscopy and applications**
- **Alternative semiconductor and dielectric materials, electronic devices**
- **Optoelectronics, photonics**

Conference Chairs:

Arsen Hakhoumian, (Dr. Sc., Corr. Member NAS RA, IRPhE, Armenia)

Tigran Zakaryan (Dr. CEO, IRPhE, Armenia)

Program Committee:

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Stepan Petrosyan (IRPhE, Armenia)

Yuri Avetisyan (YSU, Armenia)

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Emil Asmaryan (IRPhE, RA)

Hayk Manukyan (VIAVI Solutions, UK)

Anahit Mnatsakanyan (IRPhE, RA)

27 September, Tuesday

10:30-11:00	**IRPhE'22 Registration**	
Session dedicated to 100-years jubilee of academician Emil Mirzabekyan **Chairman: Corr. Member of NAS RA, Prof. Arsen Hakhoumian**		
11:00-11:20	Opening Speech: Academician of NAS RA, Prof. **Radik Martirosyan**	
11:20-11:40	Academician of NAS RA, Prof. **Albert Gulyan**	
11:40-12:00	Academician of NAS RA, Prof. **Vladimir Aroutiounian**	
12:00-12:20	Prof. **Vahan Avetisyan**	
12.20-13:30	**Lunch**	
Microwave & THz Technologies, (MW-I) **Chairman: Dr. Tigran Zakaryan**		
13:30-13:45	Hovik V. Baghdasaryan, T.M. Knyazyan, T.T. Hovhannisyan, T. Baghdasaryan	MW1 Peculiar Emitting Properties of Electromagnetic Waves from Amplifying Medium: Numerical Analysis
13:45- 14:00	A. Mkoyan, A. Manasyan, A. Makaryan, B. Hovhannisyan, Tigran Hovhannisyan, S. Khachunts	MW2 Biosignal Processing Using Machine Learning Methods
14:00-14:15	Sergey Khachunts	MW3 Investigation of Single-layer Flat and Spherical Coil Parameters for Use in Biomedical Sensors
14:15-14:30	Ararat Stepanyan, H. Haroyan, A. Hakhoumian	MW4 Electrically Small Patch Antenna Based on Magnetodielectric Resonator
14:30-14:45	D. Hambaryan, Lilit Gevorgyan, H. Parsamyan, A. Yesayan, H. Haroyan, Kh. Nerkararyan	MW5 Microwave X-band Metamaterial Absorber Based on Graphite-Insulator-Metal Structure
14:45-15:00	Ruben Davtyan, V. Abrahamyan, M.V. Markosyan, V. H. Avetisyan	MW6 Movable Joint of Super-dimensional Waveguides of Millimeter Wave range and its Fabrication Technology
15:00-16:00	**Poster Session**	

28 September, Wednesday

Microwave & THz Technologies, (MW-II) **Chairman: Prof. Yuri Avetisyan**		
10:00-10:30	*(Invited)* Aram Robert Minasian *The University of Sydney, Australia*	**MW7** Advances in Integrated Microwave Photonic Signal Processing
10:30-10:45	Armen Sargsyan	**MW8** 2D Artificial Dielectric Periodic Structure Optimization for Polarization Rotator
10:45-11:00	Yuri Avetisyan and A. Makaryan	**MW9** Multi-cycle THz Pulse Generation in Artificial Chessboard-type Periodically Poled Lithium Niobite
11:00-11:30	*(Invited)* Kawase Kodo*, S. Mine and K. Murate **Nagoya University, Japan*	**MW10** Injection Seeded THz Parametric Generation, Detection, and Applications
11:30-11:50	***Coffee break***	
11:50-12:05	Meline Grigoryan, E. Sivolenko, A. Manasyan, A. Aharonyan	**MW11** The Comparison of LFM And NLFM Signals Using Higher Ordered Statistics
12:05-12:20	Susanna Tadevosyan	**MW12** Modification of Photo Sensor for the Antenna Near-field Measurements in the Millimeter Waveband
12:20-12:35	G.K. Karapetyan, N. G. Poghosyan, Tigran Zakaryan	**MW13** Cost-Effective Method for Radar Cross Section Assessment
12:35-12:50	Anaida Manasyan, A. Hakhumian, E. Sivolenko	**MW14** Human Arm Reflected Micro Doppler Signals Analyses Using Higher-Order Statistics
13:00-14:00	**LUNCH**	

Alternative semiconductor materials, Opto-electronic devices, (EL-I) Chairman: Corr. Member of NAS RA, Prof. Stepan Petrosyan		
14:00-14:30	*(Invited)* Levon Asryan *Virginia Polytechnic Institute and State University, USA*	**EL1** Optical Output of Diode Lasers with a Nanosized Active Region
14:30-14:45	**Stepan Petrosyan,** A. Khachatryan	**EL2** Direct Synthesis of MoS_2 Thin Films on a Plastic Substrate by the Pulsed Laser Deposition Techniques
14:45-15:00	**Vladimir Gevorgyan,** N.R. Mangasaryan, P.P. Gladyshev	**EL3** Characterization of Discrete Vacuum Thermal Evaporated CdTe Thin Films for Photovoltaic Application
15:00-15:45	*(Invited)* Ghulinyan Mher *Integrated & Quantum Optics group, Fondazione Bruno Kessler, Italy*	**EL4** A High-index SiON Integrated Photonic-Electronic Platform for Quantum Technologies
15:45-16:00	H. Baghdasaryan, **Tamara Knyazyan,** T.T. Hovhannisyan, G.R.Mardoyan, T. Baghdasaryan, E. Leitgeb, M. Marciniak	**EL5** Electromagnetic Modelling of Multi-Nanolayer Electro-Optical Modulator for Chip-to-Chip Optical Interconnects by the Method of Single Expression
16:00-16:15	**Artak Avetisyan**, A. Djotyan	**EL6** Impurity States in Gated Graphene Systems in a Magnetic Field
16:30	**Social event**	

29 September, Thursday

Alternative semiconductor materials, electronic devices, (EL-II) Chairman: Prof. Ghulinyan Mher		
10:00-10:30	*(Invited)* ***Viktor Sverdlov****,* M.Bendra, S.Fiorentini, J. Ender, R. Orio, T.Hadámek, W. J. Loch, N. P.Jørstad, W. Goes, S.Selberherr	**EL7** Modeling Advanced Spintronic Based Magnetoresistive Memory

	**Institute for Microelectronics, TU Wien, Austria*	
10:30-10:45	S. Petrosyan, **Ashot Musayelyan**, S. Pashayan, R. Avetisyan, V. Gremenok, K.Buskis	**EL8** Comparative Study of Mo thin films Deposited by DC Magnetron Sputtering on Glass and Perlite Glass-Crystalline Substrates
10:45-11:00	**Georgi Khalatyan**, L. Matevosyan, S. Petrosyan	**EL9** Band Structure of InSb/CdTe Heterojunction in the Presence of Inversion Layer Near the Interface
11:00-11:20	***Coffee break***	
11:20-11:40	*(Invited)* **Valery Gremenok*,** V. Khoroshko, T. Osmolovskaya, A. Musayelyan, S. Petrosyan **Belarusian State University, Belarus*	**EL10** Physical Properties of Cu_2SnS_3 Thin Films Prepared by Sulfurization of Sputtered Cu/Sn/Cu Stack Layers
11:40-11:55	S. Petrosyan, **Lenrik Matevosyan,** G. Khalatyan, A. Khachatryan, V. Gremenok, V. Ivanov, P. Sheuchyk	**EL11** Photosensitiviy of p-InSb-n-CdTe Heterojunction
12:00-13:30	**LUNCH**	

Microwave & THz Technologies, (MW-III)

Chairman: Prof. Kiejin Lee

13:30-13:45	**Gerard Berthiau*,** G. Wasselynck, H-K. Bui, D. Trichet, K. Lee, A. Babajanyan **Institute of Research in Electrical Energy of Nantes-Atlantique, France*	**MW15** Nondestructive Testing Applied to Carbon Fiber Reinforced Plastics with Eddy Currents and Inductive Thermography
13:45-14:15	*(Invited)* **Hiroaki Minamide** *RIKEN center for Advanced Photonics, Japan*	**MW16** Mirrorless Backward Terahertz-Wave Parametric Oscillator
14:15-14:30	**Arsen Babajanyan**, T. Abrahamyan, Kh. Nerkararyan, D. Hambaryan, K. Lee	**MW17** Investigation of Micro -Nanostructures of Composite Materials in Microwave Range by a Thermo-elastic Optical Indicator Microscope

14:30-14:50	**(Invited)** **Kiejin Lee*,** S. Kim, Zh. Baghdasaryan, J.-H. Lee , T. Abrahamyan, B. Minasyan , A. Babajanyan **Sogang University, South Korea*	**MW18** CCD Camera Imaging of the Concentrations in Glucose Aqueous Solutions at Microwave Frequency
14:50-15:05	Arsen Hakhoumian, V. Mkhitaryan, O. Mahmoodian, H. Vardanyan	**MW19** Application of Bessel Beams as Carrier of Wireless Communication System
15:05-15:20	Zhyrair Gevorkian, L. Petrosyan, and T. Shahbazyan	**MW20** Light Absorption by Weakly Rough Metal Surfaces
15:20-15:35	Ruben Davtyan, V. Avetisyan, S. Eyramjyan, A. Aharonyan, G. Sugyan, T. Manukyan, E. Aramyan	**MW21** Design and Preparation of the System for Detection of UAV Radiofrequency Signal's Radiation Direction in the 1-6 GHz Frequency Range
15:35-15:45	**Closing of IRPhE'22**	
19:00 Gala Dinner		

Poster session	
Anahit Nikoghosyan, V.R. Tadevosyan.	**P_MW1** Broadband THz Waveguide Partially Filled with a Nonlinear Crystal
Zhirayr Baghdasaryan, A.Babajanyan, S. Kim, G.Berthiau, K. Lee	**P_MW2** Visualization of Microwave E- and H-fields Distributions Using a Metamaterial by a Thermo-Elastic Optical Indicator CCD Microscope
D.H.Baghdasaryan, Armen H. Makaryan, Y.S. Sahakyan, V.R. Tadevosyan	**P_MW3** Detection of Amplitude-Modulated Laser Radiation in Transparent Orthoferrite
Stepan Martirosyan, J. Torikyan	**P_MW4** On the Pealarities Schmitt Trigger Specifications
A. Movsisyan, **Henrik Parsamyan**, H. Haroyan	**P_MW5** Fano Resonances and Optical Bistability in a Plasmonic Waveguide-Cavity System
Khachik Manaselyan, A. G. Ghoulyan, S. A. Sargsya	**P_MW6** Activated Charcoal as an Absorbing Load in Microwave X-Range

D. Baghdasaryan, A.H. Makaryan, and **Vahram Mekhitarian**	**P_MW7** On the Mechanism of Metals Electromagnetic Induction Heating
Ashot Musayelyan, A.Tokmajyan	**P_EL1** Effect of Growth Temperature on the Structural and Optical Properties of Chemical Bath Deposited CdS Thin Films
V. Melikyan, **Petros Petrosyan**, N. Avagyan, G. Abgaryan	**P_EL2** Self-Heating Analysis Method of Integral Circuits
A. Yesayan, **Arsen Papiyan**, J-M. Sallese	**P_EL3** Modeling of Nanowire Biosensor Using COMSOL Multiphysics
Narek Yezakyan, A. Yesayan , J-M. Sallese	**P_EL4** Verilog-A Implementation of NW Junctionless ISFET Compact Model and Read-out Circuit Design
H. Margaryan,D. Hovhannisyan, **Nune Hakobyan**, V. Abrahamyan, P. Gasparyan, A. Paddubskaya, N. Valynets, K. Batrakov	**P_EL5** Pyrolytic Carbon/liquid Crystal Structure Based Platform for Tunable THz Components
Levon B. Hovakimian	**P_EL6** On the Optical Theorem in Two Dimensions
E. Kozhanova, S. Danilov, V.Belyaev, H. Margaryan, **Nune Hakobyan**, V. Abrahamyan, P. Gasparyan	**P_EL7** Analyses of the Characteristics of a Spherical Quantum Dot by Wavelet Transform Methods