

International Conference on Microwave & THz Technologies and Wireless Communications

IRPhE' 2018

Dedicated to the 75th Anniversary of National Academy of Sciences of RA

PROGRAM & ABSTRACT BOOK

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

Sponsored by:



Committee of Science of
Armenia

September 19-21, 2018 – Aghveran (Armenia)

IRPhE' 2018 Main Topics:

- **Microwave devices, antennas, propagations and remote sensing**
- **THz technique, spectroscopy and applications**
- **Wireless communications and related information technologies**
- **Alternative semiconductor and dielectric materials, electronic devices**

Conference Chairs:

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

Tigran Zakaryan (Dr. CEO IRPhE, Armenia)

Program Committee:

Radik Martirosyan, (President NAS Armenia)

Arsen Hakhoumian, (IRPhE, Armenia, *Chair IRPhE'2018*)

Kiejn Lee (Sogang University, South Korea)

Sadayuki Yoshitomi (Toshiba Corporation, Japan)

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Garik Markaryan, (Lancaster University, UK)

Stepan Petrosyan (IRPhE, Armenia)

Yuri Avetisyan (YSU, Armenia)

Khachik Nerkararyan (YSU, Armenia)

Organizing Committee:

Tigran Zakaryan, (IRPhE, Chair)

Arsen Hakhoumian, (IRPhE, Co-chair)

Ashkhen Yesayan, (IRPhE, Secretary)

Emil Asmaryan (IRPhE, RA)

Hayk Manukyan (VIAVI Solutions, UK)

Anahit Mnatsakanyan (IRPhE, RA)

19 September, Wednesday

09:00 -09:30 bus pick-up near the building of National Academy of Sciences in Yerevan, 24, Marshall Baghramian Ave.

11:00-13:00	Registration/Accommodation	
13:00-13:45	LUNCH	
14:00-14:10	Opening of IRPhE'2018 Prof. Arsen Hakhoumian, IRPhE'2018 Chair	
Microwave devices, antennas, propagations and remote sensing, (MW) Chairman: Prof. Arsen Hakhoumian		
14.10-14:50 Keynote speech	Robert Minasian, <i>University of Sydney, Australia</i>	MW-1: Advances in high-speed microwave photonic signal processing
14:50-15:20 Plenary speech	Kiejn Lee, Sogang University, South Korea	MW-2: 3D visualization of electromagnetic fields and thermal distribution by the thermo-elastic optical indicator microscope
15:20-15:35	<u>Arsen Hakhoumian,</u> Omid Mahmoodian IRPhE, Armenia	MW-3: Bessel beam radial slot antenna
15:35 - 15:50	Arsen Hakhoumian, Armen Makaryan, Nubar Poghosyan, <u>Tigran Zakaryan</u> IRPhE, Armenia	MW-4: Estimation of phase noise impact on coherence length in FM-CW radars with voltage controlled oscillators
15:50 -16:05	<u>Torgom Yezekyan,</u> Armen Makaryan, Vahe Tadevosyan YSU, Armenia	MW-5: Frequency conversion in the ferromagnet at low magnetic bias fields
16:05-16:20	Coffee Break	
	Chairman: Prof. Robert Minasian	
16:20-16:35	<u>Pavel Baybakov</u> Keysight Technologies, Russia	MW-6: Millimeter-wave component characterization with vector network analyzer
16:35 -16:50	Nubar Poghosyan, <u>Sargis Sargsyan,</u> Tigran Zakaryan	MW-7: Passive V-I Sensor Based Complex Impedance Measurement System
16:50-17:05	<u>A Sargsyan,</u> Arsen Hakhoumian,	MW-8: 2D dielectric periodic structure for

	IRPhE, Armenia	Microwave Polarization rotator
17:05-17:20	<u>David Nersisyan</u> , Arsen Hakhoumian, Gor Mkrtchyan, Tigran Manukyan IRPhE, Armenia	MW-9: Digital Beamforming for OFDM Radar
17:20-17:30	Ruben Ter-Antonyan National Institute of Metrology, Armenia	MW-10: A New Reflector Antenna Having Switchable Beam width at Operating Frequency
17:30-17:40	M.V. Markosyan, V.H. Avetisyan, <u>A.K. Aharonyan</u> , R.A. Davtyan Yerevan Telecom Institute, Armenia	MW-11: The microstrip phased array antenna of centimeter waves range
17:40-17:50	M.V. Markosyan, <u>V.H. Avetisyan</u> , A.K. Aharonyan, A.A. Martirosyan Yerevan Telecom Institute, Armenia	MW-12: The slotted omnidirectional antenna on a circular waveguide with mode H_{11}
17:50-18:00	S.B. Makarov, M.V. Markosyan, <u>V.H. Avetisyan</u> , A.K. Aharonyan, H.G. Martirosyan, R.A. Davtyan Yerevan Telecom Institute, Armenia	MW-13: To problem of designing of the landing radars

18:00-19:00	Dinner	
19:00-20:30	Welcome Reception and Poster Session	
Poster session (P)		
Arsen Babajanyan, <u>L. Odabashyan</u> , Zh. Baghdasaryan, T. Abrahamyan, N. Harutyunyan, S. Kim, J. Kim, B. Friedman, K. Lee YSU, Armenia	MW-P_1: Noninvasive in-vitro monitoring of D-glucose concentration by using a microwave fractal sensor	
Arshak L. Vartanian YSU, Armenia	EL-P_2: Magnetic field control of phonon-mediated decoherence of spin-based qubit in two-dimensional quantum dot embedded in a suspended slab	
<u>Anna Asatryan</u> , A. Stepanyan, Mkrtich Yeranossyan, Albert Kirakosyan, Arshak Vartanian YSU, Armenia	EL-P_3: The influence of the transverse electric field on the hot electron energy loss rate via polar-optical phonons in nanowires	
<u>Lenrik Matevosyan</u> , G. Pluzyan, K. Avjyan, G. Dabaghyan IRPhE, Armenia	EL-P_4: Single-layer amorphous carbon anti-reflective coatings obtained by pulsed laser deposition method	
<u>Tigran Abrahamyan</u> , R. Khachatryan, Arsen Babajanyan, Khachatur Nerkararyan YSU, Armenia	MW-P_5: Sensing of silver nanoparticles in aqueous solutions by using an optical fiber probe-tip	

Gegham Gulakyan, Armen Makaryan, <u>Ruben Miroyan</u> YSU, Armenia	MW-P_6: Investigation of detection of electromagnetic radiation in the plasma at the constant electric field
<u>Anahit Nikoghosyan</u> , Radik Martirosyan, Arsen Hakhoumian, Armen Makaryan, Vahe Tadevosyan, G.N. Goltsman, S.V. Antipov YSU, Armenia	TH-P_7: Effect of attenuation on the efficiency of THz radiation generation in a nonlinear crystal integrated into a waveguide
<u>Anahit Nikoghosyan</u> , Radik Martirosyan, Arsen Hakhoumian, YSU, Armenia	TH-P_8: Efficient ultrashort THz pulse generation in LiNbO ₃ , ZnTe, GaSe and DAST crystals
Stepan Martirosyan, Albert Ghulyan, <u>Narek Yezakyan</u> , Narek Mkrtchyan, Lalayan Tamara IRPhE, Armenia	MW-P_9: A device for measuring body bio-impedance with combined various physical affects
<u>Stepan Martirosyan</u> , Julietta Torikyan IRPhE, Armenia	MW-P_10: Power analog trigger Schmitt
Norayr R. Khachatryan, <u>Ruben V. Ter-Antonyan</u> National Institute of Metrology, Armenia	MW-P_11: On the development of a feed for a Dual-Reflector radio-telescope with a fixed Hemispherical main reflector and a movable subreflector of the Gregory type
Ruben V. Ter-Antonyan National Institute of Metrology, Armenia	MW-P_12: Simple Formulae a united character simplifying the radiophysical design of Dual-Reflector Axisymmetric Antennas with a given polar equation of the generatrix of the main reflector

20 September, Thursday

09:00 bus pick-up for new arrivals at the building of National Academy of Sciences in Yerevan, 24, Marshall Baghramian Ave.

08:00-11:00 breakfast will be served at Arturs resort canteen.

THz technique, spectroscopy and applications, (TH)		
Chairman: Prof. Yuri Avetisyan		
09:15-09:45 Plenary speech	Gabor Almasi Institute of Physics, University of Pécs, Hungary	TH-1: Generation and applications of extremely high-field near single cycle terahertz pulses
09:45-10:15 Plenary speech	Michael Bakunov University of Nizhny Novgorod, Nizhny Novgorod, Russia	TH-2: Terahertz pulses with dc precursors
10:15-10:30	<u>Hovik Baghdasaryan</u> , T.M. Knyazyan, T.T. Hovhannisyan, A.V. Daryan, M. Marciniak National Polytechnic University of Armenia	TH-3: General expression of the Poynting vector operating also in the region of evanescent wave: natural quantity in the method of single expression
10:30-10:45	<u>Henrik Parsamyan</u> , Torgom	TH-4: Plasmonic nanoparticles arrangements for

	Yezeqyan, Hovhannes Haroyan YSU, Armenia	biosensing.
10:45-11:00	<u>Eduard Rostomyan</u> IRPhE, Armenia	TH-5: The dynamics of instability development in spatially separated electron beam- plasma system
11:00-11:15	Coffee Break	
	Chairman: Prof. Gabor Almasi	
11:15-11:45 Plenary speech	Kodo Kawase Nagoya University, Japan	TH-6: Multi wavelength is-TPG for one-shot spectroscopy
11:45-12:15 Plenary speech	Masayoshi Tonouchi Osaka Universit, Japan	TH-7: Highly sensitive THz microfluid chips coupled with a few arrays of meta-atoms
12:15-12:30	<u>Yuri Avetisyan</u> , Ruben Miroyan, Vahe Tadevosyan YSU, Armenia	TH-8: Noncollinear THz generation by opticalrectificationin periodically poled lithium niobate crystals
12:30-12:45	<u>Hovhannes Haroyan</u> , TorgomYezeqyan, Henrikh Parsamyan, Khachatur Nerkararyan YSU, Armenia	TH-9: Fano Resonance in coupled semicylindrical Microresonators
13:00-14:00	LUNCH	
	Alternative semiconductor materials, electronic devices, (EL)	
	Chairman: Prof. Stepan Petrosyan	
14:00-14:30 Plenary speech	Sadayuki Yoshitomi Toshiba Memory Corporation, Japan	EL-1: Advances of Compact Transistor Modelling Technologies for RF, millimetre-wave, and IoT Technology
14:30-15:00 Plenary speech	Levon V. Asryan Virginia Polytechnic Institute and State University, USA	EL-2: Close-to-ideal semiconductor lasers: Optimizing performance by suppressing recombination outside the active region
15:00-15:15	Zhyrair Gevorkian IRPhE, Armenia	EL-3: Quantum plateaus in dynamical Hall conductivity
15:15-15:30	Ashkhen Yesayan IRPhE, Armenia	EL-4: Compact transcapacitance model for short-channel FinFETs
15:30-15:45	Levon Hovakimian IRPhE, Armenia	EL-5: On a validity criterion for the Born approximation
16:15-16:30	Coffee Break	
16:15-16:30	Stepan Petrosyan, Narek Yeranyan, <u>Ashot Musayelyan</u> , Sveta Pashayan IRPhE, Armenia	EL-6: Characterization of CZTS thin films synthesized by two-stage magnetron sputtering on Mo covered perlite glass-crystalline substrate

16:30-16:45	Stepan Petrosyan, <u>Ashot Khachatryan</u> IRPhE, Armenia	EL-7: Electrical characteristics of Sb-n-InSb. Schottky barrier diodes
16:45-17:00	Stepan Petrosyan, Lenrik Matevosyan, <u>Karapet Avjyan</u> IRPhE, Armenia	EL-8: Charge transport mechanism in p-InSb/n-CdTe heterostructure
19:30	Gala Dinner	

21 September, Friday

08:00-10:00 breakfast will be served at Arturs resort canteen.

Wireless communications and related information technologies, (WL)		
Chairman: Dr. Tigran Zakaryan		
10:00-10:30 Plenary speech	Hayk Manukyan VIAVI Solutions, UK	WL-1: A Novel CoAP NB-IoT Testing Solution for 5G Wireless Networks Validation
10:30-11:00 Plenary speech	Dmitry Titov Keysight Technologies, Russia	WL-2: Advanced modulation and coding challenges on the way to 400G and terabit Ethernet
11:00-11:15	<u>Hovhannes Haroyan</u> , G. Hovsepian, S. Sargsyan YSU, Armenia	WL-3: Power Domain Non-orthogonal Multiple Access (PD-NOMA) technique for 5G networks
11:15-11:30	<u>Gor Mkrtchyan</u> , Arsen Hakhoumian, David Nersisyan, T.Manukyan IRPhE, Armenia	WL-4: OFDM Radar Signal Processing
11:30-11:45	Coffee Break	
11:45-12:15 Plenary speech	Faris Muhammad VIAVI Solutions, UK	WL-5: Novel Approach to Wireless Communications Software Development Performance and Productivity Evaluation – SAFe based
12:15-12:30	<u>Muhammad Johal</u> , G. Markarian Universiti Teknikal Malaysia Melaka, Malaysia.	WL-6: Content-Aware Cross Layer Optimization for IMT-Advanced Systems
12:30-12:45	<u>Juwita Sultan</u> , G.Markarian, D. Zvikhachevskiy Universiti Teknikal Malaysia Melaka, Malaysia.	WL-7: Hybrid WiFi, WiMAX and LTE Network based on Quality of Service (QoS) using Opnet
12:45-13:00	Closing Ceremony	
13:00-14:00	Lunch	
14:00-17:00	Sightseeing tour on the way back to Yerevan	