

GAGIK SHMAVONYAN

Date and Place of Birth: May 12, 1963, Yerevan, Republic of Armenia
Nationality: Armenian
Marital Status: Married with two children
E-mail: gshmavon@yahoo.com gshmavon@seua.am
Tel.: + (37493) 000 976
LinkedIn ID: www.linkedin.com/pub/gagik-shmavonyan/24/654/661
<https://sites.google.com/site/gagikshmavonyan/>
https://www.researchgate.net/profile/Gs_Shmavonyan



Associate Professor (Full Professor - pending)
D.Sc. in Electronic Engineering
Ph.D. in Physics
M.Sc. in Electronic Engineering

 COST (European Cooperation in Science and Technology) (**Belgium, Germany**)
 Institute of Physics, Chartered Physicist (**UK**)
 American Physical Society (**USA**)
 St. Petersburg Scientific and Educational Society (**Russia**)

EDUCATION

- **D.Sc. in Electronic Engineering (Habilitation)** from State Engineering University of Armenia, Armenia, 2009.
- **PhD in Physics** from Yerevan State University, Armenia, 1996.
- **M.Sc. in Electronic Engineering** from State Engineering University of Armenia, 1985.

PROFESSIONAL EXPERIENCE

Dec. 2007 – present Associate Professor with teaching responsibilities, National Polytechnic University of Armenia (renamed on December 23, 2014), Department of Microelectronics and Biomedical Devices, Yerevan, **Armenia**.

Jan. 31 – Feb. 7, 2016 Visiting Professor, University of Cergy-Pontoise, Departments of Physics and Mathematics, **France**.

October 2014 – present CEO, Founder, “NanoHi” start-up Company, Yerevan, **Armenia**.

Sept 2013 - July 2014 Visiting Scholar, University of Santiago de Compostela, Laboratory of Nanotechnology and Magnetism (NANOMAG), Research Technological Institute, Department of Physical Chemistry, Faculty of Chemistry, Santiago de Compostela, **Spain**.

May - August 2012 Visiting Scholar, Trinity College Dublin, Department of Chemistry, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Dublin, **Ireland**.

June – August 2011 Visiting Scholar, Free University Berlin, Department of Physics, Berlin, **Germany** in collaboration with the School of Physics and Astronomy, University of Manchester, **UK**.

September - Dec. 2006 Visiting Scholar, University of Bremen, Department of Physics, Bremen, **Germany**.

Sep. 2004 - Dec. 2007 Assistant Professor with teaching responsibilities, State Engineering University of Armenia, Department of Microelectronics and Biomedical Devices, Yerevan, **Armenia**.

Nov. 2004 - Feb. 2005 Visiting Scholar, Polytechnic of Milan, Department of Physics, Laboratory for Nanometric Epitaxial Structures and Spintronics, Como, **Italy**.

July - Dec. 2003 Visiting Professor with teaching responsibilities, University of Hull, Department of Engineering, Laboratory of Optoelectronic Devices in collaboration with the Department of Physics, University of Oxford, **UK**.

Oct. – Dec. 2002 Visiting Scholar, University of Bremen, Department of Physics, Bremen, **Germany**,

Dec. 2001 – Aug. 2002 Postdoctoral position, Department of Electrical Engineering at National Taiwan University in conjunction with Agilent Technologies (Germany branch and USA Headquarter), Taipei, **Taiwan**.

July – Nov. 2000 Visiting Professor without teaching responsibilities, University of Hull, Department of Engineering, Laboratory of Optoelectronic Devices in collaboration with, University of Oxford, Department of Physics, **UK**.

March 1991 – Dec. 2001 Senior Research Scientist, State Engineering University of Armenia, Department of Physics, Yerevan, **Armenia**.

Dec. 1985 – March 1991 Junior Research Scientist, Tutor of Laboratory Courses of Physics, State Engineering University of Armenia, Department of Physics, Yerevan, **Armenia**.

RESEARCH FIELDS

Nanotechnology, Materials Science, Renewable Energy, Optoelectronics, Optical Communication.

RESEARCH INTERESTS

- 2D Flexible electronics, 2D hybrid devices,
- 2D materials, nano-engineering their properties,
- Synthesis graphene, fullerenes, NWs and metal clusters with the size of less than 2 nm, their characterization by optical (Raman, UV/Vis, FT-IR, NMR) spectroscopy, Fluorescence, XPS and electronic microscopy (AFM, STM, SEM and TEM) and functionalization.
- Epitaxial growth (MBE, MOVCD and STM) of semiconductor nanostructures,
- Design, fabrication and characterisation of semiconductor nanostructured optoelectronic devices:
 - Tunable semiconductor lasers and optical amplifiers for optical fiber communications.
 - Photo-electrochemical, photovoltaic (PV) and thermophotovoltaic (TPV) cells for co-generation of electricity.

SCIENTIFIC PUBLICATIONS

- Author and co-author of 170 publications, including 48 papers in refereed journals, 20 patents (1 European, 17 Armenian, 2 USSR) and 102 International (more than 20 countries) and Local Conference papers, as well as 3 books (2 academic manuals and 1 problem book).
- Biography is published in Who's Who in the World, 28th edition, VIP Number 35541273, New Jersey, USA, 2800 p., 2010-2012.

REFEREEING

- Applied Surface Science,
- Physica Status Solidi (b),
- Physica Status Solidi (c),
- Scientia Iranica: Nanotechnology,
- IEEE Photonics Technology Letters,
- IEEE Proceedings,
- SPIE Proceedings,
- International Journal of Applied Research on Information Technology and Computing,
- Elektrotechnika & Elektronika, Sofia, Bulgaria.
- Moldavian Journal of the Physical Sciences, Moldova,
- Armenian Journal of Physics,
- Journal of Contemporary Physics, Allerton Press Inc, New York,
- Journal "Reports of the NAS of Armenia and SEUA", Series "Technical Sciences"
- Journal "Reports of the NAS of Armenia", Series "Physics"
- Journal "Proceedings of Engineering Academy of Armenia",
- Soviet Physics - Semiconductors (Fizika i Tekhnika Poluprovodnikov),
- Soviet Physics - JETP Letters (Pis'ma Zh. Eksp. Teor. Fiz.),
- Soviet Physics – Photo-electronics, Kiev-Odessa, Ukraine.

RESEARCH GRANTS (PRINCIPLE INVESTIGATOR)

- **UNIDO GEF Global Cleantech Innovation Grant AM034** (2015), National winner of GEF-UNIDO Business ideas Competition for SMEs in Armenia 2015 (Startup Acceleration Program), Awarded (10.000 USD) by United Nations Industrial Development Organization (UNIDO) for the project "Graphene-assisted thermophotovoltaic cells".
- **UNIDO GEF Global Cleantech Innovation Grant AM004** (2014), Winner of GEF-UNIDO Business ideas Competition for SMEs in Armenia 2014 (Startup Acceleration Program), Awarded (10.000 USD) by United Nations Industrial Development Organization (UNIDO) for the project "Graphene and Graphene electronics".
- **NATO Research Grant PDD(CP)-(FEL.RIG 980772)** (2004-2007) "Characterization of Semiconductor surfaces, interfaces and structures for photoelectrochemical, photovoltaic and thermophotovoltaic conversion of solar energy", 21.200 Euro.

RESEARCH AWARDS AND PRIZES

- 3rd prize (certificate and 600 USD) of the ARPA Institute (USA) Invention Competition for the project "Non-conventional, cheap and easy technology for large-scale production of graphene", Los Angeles, CA, USA, September, 2014.
- 2nd prize (certificate and 1000 USD) of the ARPA Institute (USA) Invention Competition for the project "Heterostructure Thermophotovoltaic cells", Los Angeles, CA, USA, September, 2013.
- 2nd prize (certificate and 100 USD) for the best scientific publication / research work at State Engineering University of Armenia published in 2004-2005 - for series of papers published in the field of semiconductor optical amplifiers and elaboration of signal in nanostructures, Yerevan, Armenia, December, 2005.
- Graduation paper awarded:
 - 1st prize, Alexander Popov Diploma of Honor, Soviet Union Students' Scientific Competition, Baku, Azerbaijan, 1986.

- 1st prize, Diploma for Students' excellent research at 32nd Republican Scientific Competition, Yerevan, **Armenia**, 1985.
- 1st prize for the best graduation paper, State Engineering University of Armenia, **Armenia**, 1985.

FELLOWSHIPS

- European Union Erasmus Mundus (European Community Action Scheme for the Mobility of University Students) exchange program ALRAKIS-2 scholarship (# 1720044), Postdoctoral study/Career development program, Santiago de Compostela, **Spain**, 2013-2014.
- European Cooperation in Science and Technology STSM exchange program, COST Action MP0901 "Designing Novel Materials for Nanodevices - from Theory to Practice (NanoTP)". Brussels, **Belgium**, 2012.
- DAAD (NATO Science) Fellowships, Awarded by DAAD, **Germany**, 2002, 2006 and 2011.
- Cariplo Foundation and Landau Network - Centro Volta Fellowship, Awarded by Centro Volta, Como, **Italy**, 2005.
- Dora Jones Fellowships, Awarded by the University of Hull, Hull, **UK**, 2000 and 2003.

TRAVEL GRANTS

- Travel grant for participation in the 12th International Workshop on the Physics of Semiconductor Devices, Chennai, **India**, Awarded by Armenian College and Philanthropic Academy (ACPA), Calcutta India, 2003.
- Travel grant for participation in the Photonics West 2003: San Jose, California, USA, Awarded by CRDF, 2002, **USA**.
- Travel grant for participation in the 10th International Conference on II-VI Compounds, Bremen, Germany, Awarded by the University of Bremen, **Germany**, 2001.
- Travel grant to carry out research in Osaka, Japan, Awarded by the Open Society Institute, **Armenia**, 1997.

PARTICIPATION IN RESEARCH PROJECTS

- Non-conventional, easy, cheap and ecologically clean technology of mass production for high quality graphene,
- Mechanical Ball Pencil, Mechanical Ball Nano-pencil,
- Synthesis of platinum clusters by electrochemical method and characterization of them,
- Development of the library of "smart" nanomaterials – nanoengineering of nanomaterial properties.
- Synthesis of graphene and its characterization by optical spectroscopy,
- SEM and STM investigation of the surface and cross-section features of ZnO NWs under FIB treatment
- Monolithic integration of III/V semiconductor nanostructured heterostructures and devices on silicon.
- Epitaxial growth of low dimensional Ge structures on Si (113) through surface active species mediated growth.
- Broadband gain media for external-cavity semiconductor lasers tunable from 1.25-1.65 μm ,
- Photo-electrochemical, photovoltaic and thermophotovoltaic conversion of solar energy,
- Investigation of the rotation of polarization angle of light reflected from semiconductor surfaces and interfaces
- Investigation of surface excitons on semiconductor-electrolyte interface,
- Point defect studies using Electron Paramagnetic Resonance.

INVITED TALKS / LECTURES AT SEMINARS IN LEADING RESEARCH GROUPS (27)

1. **FRANCE** (Sergy-Pontoise), University of Cergy-Pontoise, February 2016, Host Prof. Flora Koukiou, Prof. Armen Shirikyan,
2. **USA** (Silicon Valey, San Francisco and San Jose, CA), CleanTech Open Global Forum and Expo, November 15-20, 2015.
3. **ARMENIA** (Yerevan), Technology and Science Dynamics Company (USA), July 22, 2015, Host Vahan Shakaryan.
4. **ARMENIA** (Yerevan), Armenian-French Forum on Energy Sphere, November 8, 2014, organized by United Nations.
5. **GEORGIA** (Batumi), Summer school "Research methods in material science", 2 invited lectures, August 18-23, 2014, Host Prof. Tamar Tchelidze.
6. **FRANCE** (Nantes), COST project NanoTP MP0901 Meeting, April, 2014. Host Prof. Chris Ewels,
7. **SPAIN** (Santiago de Compostela), University of Santiago de Compostela, October, 2013, Host Prof. M.A. López-Quintela.
8. **IRELAND** (Dublin), Trinity College Dublin, June, 2012, Host Dr. Silvia Giordani.
9. **ITALY** (Trieste), Management Committee Annual Meeting of COST Action MP0901, November, 2011.
10. **GERMANY** (Berlin), Free University Berlin, June, 2011. Host Dr. Cinzia Casiraghi.
11. **GERMANY** (Bremen), Bremen University, October 2006, Host Prof. Dr. Jens Falta.
12. **AUSTRIA** (Riezlern), 4th Workshop of Institute of Solid State Physics, September 25 - 30, 2006, Host Prof. Dr. Jens Falta
13. **ARMENIA** (Yerevan), Workshop on Science and Technology Entrepreneurship Program (STEP) organized by US CRDF and Enterprise Incubator Foundation (Armenia), Yerevan, May 26, 2006.
14. **ITALY** (Como), Polytechnic of Milan, Department of Physics, L-NESS, 2005, Host Prof. Dr. Hans von Kaenel.
15. **KOREA** (Suwon), Samsung Electronics, Central R & D Research Center, 2004, Host Prof. Masayoshi Koike.
16. **INDIA** (Calcutta), ACPA, 2004, Host Mrs. Sonia John.
17. **UK** (London), Imperial College, London, **UK**, 2003, Host Professor Keith Barnham
18. **UK** (Oxford), University of Oxford, 2003, Host Prof. Robin Nicholas
19. **UK** (Hull), University of Hull, 2003, Host Prof. Stephanie Haywood
20. **GERMANY** (Oldenburg), University of Oldenburg, 2002, Host Dr. Rudolf Brueggemann.
21. **GERMANY** (Bremen), University of Bremen, 2002, Host Prof. Dr. Jens Falta.

22. **TAIWAN** (Taipei), National Taiwan University, 2001, Host Prof. Ching-Fuh Lin
23. **UK** (Oxford), University of Oxford, 2000, Host Prof. Robin Nicholas
24. **UK** (Oxford), University of Oxford, Physics Department, 2000, Host Prof. Roger Davies
25. **UK** (Hull), Hull, 2000, Host Prof. Stephanie Haywood
26. **ARMENIA** (Ashtarak), Institute for Physical Research, 1996, Host Prof. Radik Martirosyan
27. **ARMENIA** Yerevan State University, Department of Semiconductor Physics, 1996, Host Prof. Vladimir Haroutiounian
28. **RUSSIA** (St. Petersburg), Leningrad Optical and Mechanical Association (LOMO), 1993, Host: Dr. Andranik Ioannisiani
29. **RUSSIA** (St. Petersburg), Institute of semiconductor physics, Host Dr. Igor Uraltsev, 1990
30. **UKRAINE** (Kharkov), Company of Optics, 1988
31. **UKRAINE** (Kiev), “Paramagnetic semiconductors”, Institute of Semiconductor Physics, 1984

EXPERT

- Expert in the selection committee of scientific grants, State Committee of Science, Armenia (since 2013).

REVIEWER

Journal

- External reviewer at European Scientific Journal (ESJ), Portugal.
- Journal of Contemporary Physics, Alerton Press Inc, New York.

Book

- Zadoyan A.M. “Technology of Super high Integrated Circuits” Academic Manual, SEUA Press, 139 p., 2011 (in Armenian)
- Zadoyan A.M. “Technology of Integrated Circuits” Academic Manual, SEUA Press, 83 p., 2010 (in English).

EDITOR

- International Journal "Technology letters", Member of the editorial board, www.technologyletters.us ISSN: 2348-8131.

TECHNICAL COMMITTEE MEMBER OF CONFERENCES

- Member of the Chairs, International Conference on Green Materials and Environmental Engineering (GMEE), Phuket, Thailand, December 20-21, 2015.
- Member of the International Scientific Committee (Technical Committee), International Conference on Advanced Technology in Materials Science and Engineering (ATMSE), Phuket, Thailand, December 20-22, 2015.
- 5th International Conference on Electronics, Communications and Networks (CECNet), Shanghai, China, December 12-15, 2015
- Member of the Technical Committee, International Association of Science and Technology for Development (IASTED), which organizes different International conferences.

PARTICIPATION IN THE EXHIBITIONS (“NanoHi” Company)

- CleanTech Open Global Expo, Silicon Valey, San Jose, CA, USA, November 19-21, 2015.
- DigiTech Expo, Yerevan, Armenia, October 2-4, 2015.
- Exhibition devoted to the World Environment Day organized by UN, Lovers park, Yerevan, Armenia, June 5, 2015,

ESTABLISHED RESEARCH COOPERATION

- University of Cergy Pontoise, **France**.
- CleanTech Open, San Francisco, **USA**.
- University of Santiago de Compostela, Department of Chemistry, Santiago de Compostela, **Spain**.
- Bareilly College, Bareilly, **India**
- Italian Institute of Technology, Napoli, **Italy**,
- ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development. **Italy**.
- University of Dublin, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Dublin, **Ireland**.
- Free University Berlin, Department of Physics, Berlin, **Germany**.
- University of Bremen, Department of Physics, Bremen, **Germany**.
- Polytechnic of Milan, Department of Physics, Como, **Italy**.
- University of Hull, Department of Engineering, Optoelectronic Devices Laboratory, Hull, **UK**.
- National Taiwan University, Department of Electrical Engineering, Taipei, **Taiwan**.
- University of Tokushima, Department of Electrical and Electronic Engineering, Satellite Venture Business Laboratory, Nitride Photonic Semiconductor Laboratory, Osaka, **Japan**.

SUPERVISING

- D.Sc thesis:
 - PhD Zadoyan Ashot Mnatsakan (2016 - 2018).
- PhD students:
 - Zadoyan Ovsanna Ashot (2011-2014) "Elaboration and investigation of the epitaxially grown nanostructured thermophotovoltaic cells", April 7, 2015.
 - Sevoyan Gevorg Garegin (2011-2014).
 - Khachatryan Vladimir (2008-2011).
- Official opponent at a Ph.D. disputation for the defense of PhD thesis at YSU and NPUA:
 - Ayvazyan Karen Gagik, PhD, September 19, 2015.
 - Vahanyan Artyom Yndzaki, DSc, October 6, 2012.
 - Harutiunyan Vardan Gagik, PhD, May 12, 2012.
- Graduate Foreign and Armenian students (more than 300).
- Undergraduate Foreign and Armenian students (more than 1000).

ADMINISTRATIVE RESPONSIBILITIES

- Chair (2016) and Member (2012-2015) of the State Examination Committee at Yerevan State University.
- Member of the Examination Committee of the post-graduates' admission at National Polytechnic University of Armenia (E.11.17 - Medical devices, systems, products) (since 2015).
- Member of the Scientific Council of Cybernetics Department at State Engineering University of Armenia (2009-2013).
- Member of the Examination Committee of the post-graduates' at State Engineering University of Armenia (E.27.01 - Electronics, micro- and nanoelectronics) (2011-2012).
- Leader (Supervisor) of academic groups K730 (2009-2010) and K260 (2012-2016) at State Engineering University of Armenia.
- Coordinator of Foreign students at the Department of Microelectronic and Biomedical Devices at State Engineering University of Armenia (2008-2010).
- Member of the State Examination Committee at SEUA (since 2005).

PROFESSIONAL SOCIETY MEMBERSHIP

- Inventors Club, Yerevan, Armenia (since 2015).
- COST Action "Materials, Physics and Nanosciences (MPNS)" Project MP1302 "NanoSpectroscopy", Management Committee member with Observer status, Tübingen, Germany (since 2015).
- Graphene Council Standards Task Force, Developing industry standards (2015),
- COST Action "Materials, Physics and Nanosciences (MPNS)" Project MP0901 "Designing Novel Materials for Nanodevices - from Theory to Practice (NanoTP)", Management Committee Member, Brussels, Belgium (2011 - 2014),
- European Nanoscience and Nanotechnology Association, Member of the Scientific Board, Slovenia (since 2013),
- Armenian Association of Former Grantees of Germany, DAAD Alumni Yerevan, Armenia (since 2012),
- Society of Alumni of State Engineering University of Armenia (since 2012),
- Institute of Physics, Chartered Physicist, M Inst P (ID # 1064163), London, UK (since 2001),
- St. Petersburg Association of Scientists and Scholars, St. Petersburg, Russia (since 2001),
- American Physical Society, Member (ID # 60046687), Washington, USA (since 2000),
- Pan-Armenian Academic and Scientific Society, London, UK (1997 – 1999),
- All Armenian Forum, Member of Science and Education Committee, Moscow, Russia (1994 – 1996).

NON PROFESSIONAL SOCIETY MEMBERSHIP

- Representative of St. Petersburg Scientific and Educational Society in Armenia (since 2010).
- Representative of Armenian College and Philanthropic Academy (Calcutta, India) in Armenia (2004 – 2005).
- President of Armenia - Great Britain Society, NGO, Yerevan, Armenia (since 2000).
- Representative of AJA (worldwide) in Armenia (1997 - 1998).

LANGUAGE COURSES ATTENDED

- International Language Course Center, University of Santiago de Compostela, Santiago de Compostela, Spain
Certificate in Spanish language and culture course (3 week intense course, October 3 - 25, 2013).
- Lecturers' Advanced Training Center, State Engineering University of Armenia, Yerevan, Armenia
Certificate in English language technically oriented communication course (1 year course, 2005/2006 academic year).
- State Engineering University of Armenia, Social Professions Department, Yerevan, Armenia
Diploma in Technical Translation (English language) and Informatics (1.5 year course, 1983 - 1985).

TRAINING COURSES / WORKSHOPS ATTENDED

- Training courses for SMEs, CleanTech Armenia, United Nation Office in Armenia, Certificate (June-October, 2015).
- Technology Entrepreneurship Workshop: STEP Armenia, organized by US CRDF Global and EIF (May 30, 2015).
- Training courses for SMEs, CleanTech Armenia, United Nation Office in Armenia, Certificate (July-November, 2014).
- Professional Training Courses, State Engineering University of Armenia, Faculty Development Center, Certificate in Professional Training (2011-2012 academic year).
- Workshop on how to write scientific grant proposals, National Foundation of Science and Advanced Technologies (Armenia) & US CRDF (October 2 - 4, 2001).
- Web Design Workshop, University of Armenia, Internet Access Training Program (November 22 - December 1, 2000).
- Workshop, Finance Broker in dialing operations, Trader/Dealer in Forex Market, Armenian Development Bank, Dealing Center, (September 13, 1999 – January 31, 2000).
- Training course in the usage of MS-DOS, NC, Windows, WinWord and Excel, Informatics Scientific Educational Association, Certificate (June 1 - July 6, 1996).
- Internet & Homepage Design Literacy Course, Armenian Assembly of America, Resource & Training Center (March 9-16, 1997)
- Workshop on how to write scientific grant proposals, Armenian Assembly of America, Resource and Training Center (February 7 - April 18, 1995).

SKILLS

PEDAGOGICAL SKILLS

Teaching undergraduate, graduate and post-graduate International (English) and local (Armenian) University students.

COMPUTING SKILLS

MS Office for Windows, Word, Excel, Microcal Origin, LabView, MatLab, etc.

LANGUAGES

Fluent in Armenian (native), English (fluent), Russian (fluent) and Spanish (poor).