

## NURU SAFAROV

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## WORK EXPERIENCE

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**Khazar University, School of Engineering and Applied Science. Head of Department of Electronics and Telecommunications, Lecturer of Semiconductor Devices and Modeling, Analog and Digital Electronics, Electrical Measurements and Methods, Electrodynamics, Electromagnetism, Radio physics. Azerbaijan, 2010 (September) - present.**

**Khazar University, School of Engineering and Applied Science. Lecturer of Physics, Introduction to Computer Sciences, Fundamental of Computer Programming, Database. Azerbaijan, 1998 (January) - 2010.**

**Azerbaijan National Academy of Sciences, Institute of Physics, “Diffusion transitions in semiconductors” laboratory. Leading Researcher, Azerbaijan, 1988 (September) – 2016 (September).**

## EDUCATION

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1. Diploma, M. Sc. in radio physics & electronic, Dnipropetrovs’k State University, Ukraine 1988.
2. Graduate student, Institute of Physics, Baku Azerbaijan 1990-1993
3. Ph.D., Institute of Physics, Baku Azerbaijan 1997
4. Diploma, Professor of International Ecoenergy Academy 2007

## PUBLICATIONS

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## 2019

1. Новая технология создания высокочувствительных сегнетопьезоэлектрических материалов на основе гибрида микро- и наноструктурированных полимеров. Журнала технической физики No. 5, май 2019
2. New Technology of High-Sensitivity Ferro/Piezoelectric Materials Based on Micro- and Nanostructured Hybrid Polymers. TECHNICAL PHYSICS. Volume: 64 Issue: 5 Pages: 693-697. DOI: 10.1134/S1063784219050116. Published: MAY 2019
3. DIELECTRIC PROPERTIES OF CdMnTe(Se) SEMIMAGNETIC SEMICONDUCTORS. MODERN TRENDS IN PHYSICS. Book Series: Modern Trends in Physics-Series. Pages: 56-59. Published: 2019
4. Optical properties of defective cdmnse epitaxial films. Mechanisms and non-linear problems of nucleation and growth of crystals and thin films. 1–5 July 2019. Saint-Petersburg Russia. P.157
5. Silisium fotoelementi əsaslı LED driver. Tələbələrin IV Respublika elmi konfransının materialları 16 May 2019, Bakı Dövlət Universiteti, s. 77-79

## 2018

1. Plasma methods for nanostructuring the polymer matrix of piezoelectric nanocomposites AJP FIZIKA 2018 vol. XXIV №1, section: En., p.18-23 [http://physics.gov.az/Dom/2018/AJP\\_Fizika\\_01\\_2018\\_en.pdf](http://physics.gov.az/Dom/2018/AJP_Fizika_01_2018_en.pdf)
2. Survey of Filter Bank Multicarrier (FBMC) as an efficient waveform for 5G International Journal of Pure and Applied Mathematics Volume 118 No. 7 2018, 45-49 <https://acadpubl.eu/jsi/2018-118-7-9/articles/7/6.pdf>
3. Optical Properties of Solar Thermophotovoltaic Elements Based on Three-Component Compounds Bi<sub>2</sub>Te<sub>3</sub>-xSex. Optics. Vol. 7, No. 1, 2018, pp. 13-17. doi: 10.11648/j.optics.20180701.13. <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=126&doi=10.11648/j.optics.20180701.13>
4. Гибридные органические – кремниевые нано-композиционные датчики. Четвертый междисциплинарный научный форум с международным участием "новые материалы и перспективные технологии" сборник материалов. с. 118-120. Москва. 27-30 ноября 2018 г.

## 2017

3. Absorption Coefficient of Bi<sub>2</sub>Te<sub>2.5</sub>Se<sub>0.5</sub> Structures Applicable to the Creation of Photoelectric Converters Advancements in Materials, Vol. 1, Issue 1, Dec 2017, Pages 17-28; <http://www.itspoa.com/UploadFiles/2018-02/369/2018021416143792625.pdf>
4. Optical Properties of Solar Thermophotovoltaic Elements Based on Three-Component Compounds Bi<sub>2</sub>Te<sub>3</sub>xSex Optics. Vol. 7, No. 1, 2018, pp. 13-17. doi: 10.11648/j.optics.20180701.13 <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=126&doi=10.11648/j.optics.20180701.13>
5. Efficiency in Solar Photovoltaic Systems Under High Temperature Conditions. International Journal of Electrical Components and Energy Conversion. Vol. 3, No. 6, 2017, pp. 88-92. doi: 10.11648/j.ijecec.20170306.11 <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=332&doi=10.11648/j.ijecec.20170306.11>
6. Alternative - Renewable Energy Complex on the University Base American Journal of Embedded System and Applications. Vol. 5, No. 5, 2017, pp.39-43. doi: 10.11648/j.ajes.20170505.12 <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=236&doi=10.11648/j.ajes.20170505.12>
7. The hybrid composites based new materials for the Electromechanical and acoustic-electrical converters. Journal of non-oxide glasses vol. 9, no 1, 2017, p. 19 - 23
8. System Monitoring of the Emotional State of Students in High School. American Journal of Data Mining and Knowledge Discovery. Vol. 2, No. 3, 2017, pp. 76-79. doi:10.11648/j.ajdmkd.20170203.11, 4.

## 2016

9. Synthesis Of Silver Nanoparticles In Different Polymers Environment. Azərbaycan Kimya Jurnalı № 4 2016, s. 6-10.
10. Şüa konsentratorunda materialların istiliyə dözümlülüyü. Maşınqayırmada intellektual texnologiyalar. Beynəlxalq elmi-texniki konfrans. 28-30 sentyabr 2016., 3.
11. Polymer - Silicon Sensor for Determination Flow. Global Journal of Engineering Science and Research Management. 3(9): September, 2016, p.19-21/ DOI: 10.5281/zenodo.62006, 3

## 2013

12. On features of potential distribution in avalanche photodiodes with deeply buried pixels. Azerbaijan Journal of Physics. Vol.XIX, №2., 2013, s.17-19

## 2012

13. Performance of silicon micropixel avalanche photodiodes after irradiation by 150MeV photon beam. Azerbaijan Journal of Physics. Vol.XVIII, №2., 2012, s.18-21
14. Исследование влияния альфа частиц с энергией 4,8Мэв на физические свойства МЛФД. Milli Aviasiya akademiyası, Elmi məcmuələr. Cild 14. №1., 2012 s.12-15
15. Mikropikselli selvari fortodiodların bərpa olunma müddətinin öyrənilməsi. Fizika j. Vol.XVIII , №1., 2012 s.10-12

## 2011

16. Hybrid piezoelectric composites with high electromechanical characteristics. United States Patent. PatentNo.:US8030829B1, Oct.4, 2011
17. Conductivity photoquenching effect in polymer–ferrocene composites. Semiconductors, ISSN: 1063-7826, Vol: 45, Issue: 4, Date: 2011-04-01, Start page: 503, # of pages: 7
18.  $\gamma$ -Radiation Stimulated Structural Transition of Monoclinic TlInS<sub>2</sub> to Hexagonal Phase. Japanese Journal of Applied Physics, ISSN: 0021-4922, Vol: 50, Issue: 5, Date: 2011
19. Controlling system for emotional state of working personnel. 7<sup>th</sup> international conference on TPE (ICTPE-2011), Lefkosa, TR Northern Cyprus, 7-9 July, p.553-555. 2011
20. Automated system for control and correction functional state of human. 5<sup>th</sup> international conference on Application of Information and Communication Technologies, 12-14October 2011, Baku, Azerbaijan, 208-210

## 2010

21. Correlation of the optical properties with  $\epsilon(T)$ - dependence at ferroelectric phase transition in TlInS<sub>2</sub> doped with different impurities. 17<sup>th</sup> International Conference on Ternary and Multinary Compounds 27-30September, 2010, Baku, p.63
22. A new avalanche photodiode with wide linearity range. J. Physics NAS, vol. XVI, Number 2, pp.367369, 2010
23. Effect of electrical photo guenching in polymer – ferrocene. J. Physics NAS, vol. XVI, Number 2, pp.378-380, 2010

## 2009

24. Independent photoelectric installation with thermodynamic observation the sun. 10-th Baku Intern. Congress “Energy, Ecology, Economy”, 23-25 September, Baku, 2009, p.91-93
25. Performance of new micro-pixel avalanche photodiodes from Zecotek Photonics. Nuclear Instruments and Methods in Physics Research A, 610 (2009) 381-383

26. Method for increasing conversion efficiency of solar energy into electric power and a device for carrying out said method. Patent. WO/2009/105840
27. Investigation of  $\text{Si-SiO}_2/\text{Obligo-}\beta\text{-naphthol/metal}$  heterostructures. Scientific Israel - Technological Advantages, vol 11, No 1: Material Engineering, 2009. p. 9-14
28. Basic construction for solar power plants. 10-th Baku Intern. Congress "Energy, Ecology, Economy", 23-25 September, Baku, 2009, p.93-96
29. Application nanotechnologies for increase of efficiency of a solar photocell. *Ecoenergetika*, #1, 2009, p.39-42

## 2008

30. Hybrid organic – silicon nano-composite devices and risk assessment of nanobiotechnologies. Abstracts Book. NATO ARW 2008, Environmental and Biological Risks of Nanobiotechnology, Nanobionics and Hybrid Organic-Silicon Nanodevices (Silicon vs Carbon), SaintPetersburg, Russia
31. Photogeneration processes in semiconductive polymeric gamma detectors. V Eurasian Conference "Nuclear science and its application", 2008, Ankara, Turkey
32. Synthesis of quantum dots and mesoporous of  $\text{TiO}_2$  for solar cells. J. Physics NAS, v.XIV, #3, pp.154157, 2008.
33. Solar concentrator Patent. Patent N 2008, 0041, 07.03.2008
34. Automatic photoelectric device for most optimum illumination of objects. ICCES, vol.086, #1, p.1-6, 2008
35. Investigation of photogeneration processes in semiconductive polymers. Fizika, 2008, v.XIV, #1, p.10-13

## 2007

36. Electric and luminescent properties of radiation detection materials  $\text{CdTe:Cl}$ . Proceeding of the 9-th Baku Intern. Congress "Energy, Ecology, Economy", Baku, 2007, p.283-286
37. Thermophotovoltaic properties of  $\text{Bi}_2\text{Te}_3$  and  $\text{Bi}_2\text{Se}_3$ . Fizika, 2007, v.XIII, #4, Baku, p.156-158
38. Matrix sensor of stream on the bases of composite materials. International Conference on Computational and Experimental Engineering and Science, Jour. ICCES, vol.1, #1, pp.1-5, 2007

## 2006

39. Polymer matrix sensors. Book of Abstracts. The 3-rd International Congress of Nanotechnology 2006, October 30 – November 2, San Francisco, USA
40. A solar power plant with a high performance solar cells and thin concentrators. Inter.Conf. "Renewable Energy – 2006", Makuhari Messe Chiba, Japan, 2006, sr043H00094
41. Gamma radiation detectors on the base  $\text{CdTe}$  for environmental monitoring. Book of abstracts. The 4-th Eurasian Conference on Nuclear Science and its Application, 2006, Baku. Pp. 189-190
42. Matrix composite sensor for measurement mere stream, J.Physics NAS, 2006, v.12, #1-2, p.38-40. Baku
43. Measurement heat stream in mere by the matrix sensor. Proc. US/EU –Baltic International Symposium "Integrated ocean observation systems for managing global and regional ecosystems using marine research, monitoring and technologies" 2006, 4F, #147, May 23-24, Klaipeda, Lithuania
44. Thermophotovoltaic converters on the basis  $\text{AvBvi}$  for high concentration solar applications International Scientific Journal for Alternative Energy and Ecology, Russian, №5(37) (2006) p. 85-87
45. Monitoring of intensity of electromagnetic radiation. 3<sup>rd</sup> Int.Conference on Technical and Physical Problems in Power Engineering, May 29-31, 2006 Ankara, Turkey, p.687-689

46. A solar power plant with a high-performance solar cells and thin concentrators made of Al-backed epoxy coated polymers. 3<sup>rd</sup>Int.Conf.onTech.and Phys.Prob.inPowerEngin,May 29-31,2006 Ankara,Turkey, p.1037-1039
47. Serial resistance of the solar converter on the basis of silicon working at the concentrated radiation. 3<sup>rd</sup> Intern. Conf.on Technical and Physical Problems in Power Engineering, May 29-31, 2006 Ankara, Turkey, p.1070-1071
48. Thermophotovoltaic solar energy converters on the basis A<sup>V</sup>B<sup>VI</sup>. 2006 IEEE 4th World conf. on Photovoltaic Energy Conversion, 7-12 May 2006, Hawaii, USA. Poster Session I-Conc. PV and TPV, #164.

## 2005

49. Short-wave photosensitivity in the irradiated silicon photoconverters with optical coverings Habarlar, ANAS , 2005, №5, p.51-55
50. Devices self-steering of electrical circuit. Patent. I 2005 0059, № a20030081, 25. 04. 2005
51. Effect of temperature processing on generative time of life of the bearers in detectors of nuclear particles on the basis of high-ohmic silicon, Inter. Conf. "Fizika-2005", 7-9 June 2005 – Baku, Azerbaijan, p. 827-829

## 2004

52. A new low-noise avalanche photodiode with micro-pixel structure, Fizika, №4, 2004, p.126-127
53. Structural change SiO<sub>2</sub> used in multilayered silicon solar elements. Ecoenergetics, №2, 2004, c.2627
54. Using magnetic field in cooling systems of solar photoelectric sets 2<sup>nd</sup> International Conference on Technical and Physical Problems in Power Engineering 6-8 September 2004 Tabriz p.779-780
55. Short-wave photosensitivity in the irradiated silicon photoconverters with optical coverings 2<sup>nd</sup> Inter. Conf. on Technical and Physical Problems in Power Engineering 6-8 September 2004 TabrizIran, p.810-812
56. New cationo-active oligomeric electrolytes based on epichlorohydrin and amines XVIII. Ulusal Kimya Kongresi, Kars, 5-9 temmuz 2004, p.1061
57. About a possibility of usage of a magnetic field in refrigerating systems of solar photoelectric system. Power engineering, ecology, 2st Intern.scien. and techn. conference, 8-11 Sept. 2004, Tobolsk, Russian, 1, p..237-239
58. Features of application of photoelectric modules in mountain conditions of Azerbaijan, Power engineering, ecology, 2st International conference, 8-11 September 2004, Tobolsk, Russian, 1, p.234-236

## 2003

59. The influences of the surface effects on the mechanisms of the current passage in the silicon photo elements with optical coverings. Journal of Physics, 2, p.15-17 (2003)
60. Calculation method and results of electricity production by solar photoelectrical devices for the Azerbaijan climatic regions and zones. Journal "Power engineering problems" 1, p.20-27 (2003),
61. Influence of radiation on photo-electric characteristics of silicon photo cells with optical coverings, 4-st Inter. Conf." Nuclear and radiative physics " Alma-ate, Republic of Kazakhstan 15-17 september 2003, p.195-196

## 2002

62. Surface effects in silicon solar elements, First International Conference on Technical & Physical Problems in Power Engineering, 23-25 April 2002 Baku-Azerbaijan, p. 439-441

## 2000

63. The photoelectric and radiative characteristics of silicon photovoltaic converters with double-ended sensitivity, Problem of a power engineering, 2000, №2, p.86-91

## 1994

64. Effect a direction of a beam coupling on velocity of a degradation of parameters of silicon solar elements, Geliotechnica, 1994, №6,  
65. A research of effect of the expedited electrons on CuO<sub>2</sub>, used in Si elements, Geliotechnica, 1994, №3, p.11-13  
66. Silicon solar elements with covering Nd<sub>2</sub>O<sub>3</sub> and ZnS + Nd<sub>2</sub>O<sub>3</sub>. Journal of Solar engineering, 1994, 1, p.14-16

## 1993

67. Some features of silicon solar elements with double-ended sensitivity, Geliotechnica, 1993, №6, 13  
68. Silicon solar elements with covering SiO<sub>3</sub> and Si<sub>3</sub>N<sub>5</sub>. Journal of Solar engineering, 1993, 1, p.75-77

# LANGUAGES

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- Azerbaijan (native)
- Russian (fluent)
- English (good)
- Turkish (good)

# SELECTED HONORS and AWARDS

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- Honors Award by the Ministry of Education – 2012
- Certificate/Sertifikat – Training for Trainers on Application of the New Subject Curriculum and Active Learning in Secondary School (Ümumi orta təhsil səviyyəsi üzrə yeni fənn kurikulumlarının tətbiqi və fəal təlim), Subject – Computer Sciency, Baku, Azerbaijan, 13-23 February, 2012. UNICEF
- “Sabahın alimləri” V respublika müsabiqəsində rəhbərlik etdiyi layihənin 3-cü yerə layiq görüldüyünə görə – 2016
- Certificate/Sertifikat – Training on Writing Learning Outcomes in Relation to Azerbaijan Qualification Framework (Azərbaycan Kvalifikasiyalar Çərçivəsi Əsasında Təlim Nəticələrinin Yazılması üzrə Təlim) Bakı, 29-31 mart 2016-cı il, TWINNING

- Certification of Appreciation – First Annual Robotics Competition, Baku, Azerbaijan, 18 December, 2015 – Khazar University

## GRANT ACTIVITY

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- INTAS Ref. No: 05-1000008-8114. Development, tests and prototyping of novel types of matrix avalanche photo detectors for the Cherenkov light detection for the PANDA experiment at GSI, Darmstadt, 2006-2007
- CRDF US-Azerbaijan Bilateral Grant , #3106, Development new Avalanche Photodiodes for Detection of Gamma-ray and Charged Particles, 2005-2006
- STEP Business Partnership Grants 2006, #BPG-3, Development of automated device for electric circuits
- Azərbaycan Prezidenti yanında elmin inkişafı fondu. EİF-BGM-2-BRFTF-1-2013. Poliefir liflərdə və təbəqələrdə kreyzing effektinin tədqiqi, 2013-2014
- Azərbaycan Respublikasının Prezidenti yanında Elmin İnkişafı Fondunun Qrantı. EİF-20101(1)-40/04-M-3. 2011
- Project acronym: ENERGY. Project number: 530379-TEMPUS-1-2012-1-LV-TEMPUS-JP

## TEACHER TRAINING

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- Tempus Energy. Development of Training Network for Improving Education in Energy. Efficiency. Teacher Training January 2014 - KU Leuven, Oostende – Belgium.

## QUALIFICATIONS

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- Office Programs, Windows 10, 8.1, Microsoft Office 2016, Internet Browsers, Scope.
- Matlab, Origin 6.1, Origin 7.1, Origin 8.1

## RESEARCH INTEREST

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- Solar energy, Electronics, Semiconductor and Dielectrics Physics, Solid State Electronics, Nanotechnology and Nanostructure, Photo-voltage and radiating effects in silicon solar elements