



## FACULTY OF PHYSICS AND MATHEMATICS



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<b>EDUCATION:</b>	<p><b>1977- 1983:</b> Moscow State University, Physics Faculty, Department of Solid State Physics Degree obtained Diploma in Physics.</p> <p><b>1987-1990 :</b> PhD student in Tashkent State University attached to Moscow State University,</p> <p><b>1993-</b> Degree obtained PhD in semiconductor physics.</p> <p><b>2019-</b> Degree obtained DSc (Doctor of science) in semiconductor physics</p>
<b>CAREER / EMPLOYMENT:</b>	<p><b>1983 – 1985:</b> military service</p> <p><b>1985 – 1986:</b> Junior researcher in gamma-activation analysis laboratory, Applied Physics Institute of Tashkent State University.</p> <p><b>1990 - 1993:</b> The engineer, semiconductors physics department of Tashkent State University</p> <p><b>1992 - 1996:</b> Assistant professor at Physics department of Urganch State University.</p> <p><b>1997- 2010:</b> Head of the Physics Department, Urganch State University .</p> <p><b>2010- 2013:</b> The deputy director of Urganch branch of Tashkent university of information technologies (UBTUIT) and docent at department of natural sciences, mandatory docent position at Urgench State University</p> <p><b>2013- 2016:</b> Docent of natural sciences department of UBTUIT, mandatory docent position at Urganch State University</p> <p><b>2016- present:</b> docent, physics department, Urganch State University</p>
<b>SPECIALITY</b>	<ul style="list-style-type: none"> <li>• Physics.</li> </ul>
<b>TEACHING SUBJECTS:</b>	<p>Quantum mechanics, physics of defects in semiconductors, photoelectrical phenomena in semiconductors and in semiconductor devices.</p>
<b>RESEARCH AREAS OF INTEREST:</b>	<p>Modeling of semiconductor nanoscale devices, semiconductor multilayers, semiconductor surfaces, semiconductor – oxide interface, MOS structures, MOSFETs, FinFETS, Junctionless MOSFET, short channel effects, RTN in nanometer MOSFET, subthreshold behavior of MOSFET, CMOS, radiation physics of semiconductor devices.</p>
<b>PRESENT PROJECTS:</b>	<p><b>2016-2019.</b> RENES – “ Development of the Master program in renewable energy and sustainable environment” ( Erasmus+ program).</p> <p><b>2017-2020</b> “ New approach to investigation of the nature and lateral distribution of the</p>

	<p>defects at Si-SiO<sub>2</sub> interface and in the oxide layer”. Ministry of innovational development of Uzbekistan.</p> <p><b>2021-2023.</b>Uzbek-Indian joint project “Self Heating Effect on stacked Nanosheet Field Effect Transistor”</p>
<p><b>LIST OF SELECTED PAPERS</b></p>	<p><b>1.</b>Atamuratov A.E., Babadjanov R.D., Gromov Y.A., Zaynabidinov S. Influence of bremsstrahlung with Emax = 25 MeV on MOSFET characteristics. Doklady Physics 1989, No. 3, p. 31</p> <p><b>2.</b> Zaynabidinov S., Daliev H., Atamuratov A.E. Low temperature annealing influence to the Si-SiO<sub>2</sub> interface states densities of MOSFETs. Doklady Physics.1992, No.1, p.24.</p> <p><b>3.</b> Atamuratov A.E., Zainabidinov S., Yusupov A., Daliev H.S., Adinaev K. Influence of surface states generated at the Si--SiO<sub>2</sub> interface to the MOSFET leakage current. Tech. Phys. Lett. Vol. 21, No.21, 79 (1995)</p> <p><b>4.</b> Atamuratov A.E., Zainabidinov S., Daliev H.S., Yusupov A., Adinaev K. Effect of thermal--field treatment and ionizing radiation on the energy spectrum of Si-SiO<sub>2</sub> interface states of a MOSFET. Tech. Phys. Vol. 42, No.9, pp. 1106-1107 (1997)</p> <p><b>5.</b> Zainabidinov S., Atamuratov A.E., Yusupov A., Adinaev K. Ionizing Radiations and annealing influence on MOSFET charge states. Tr. J. of Physics, V.23, No. 3, 1999, p.485.</p> <p><b>6.</b> Atamuratov A.E., Yusupov A., Adinaev K. Experimental Assesment of the Nonuniform Radiation – Induced Space – Charge Distribution in the Surface Region of Silicon. Inorganic Materials, 2001, Vol. 37, No. 8, p.767.</p> <p><b>7.</b> Atamuratov A.E., Yusupov A., Aminov U.A. Influence of a high energy Bremsstrahlung and heat treatment on parameters of the MOSFET. Informations of Higher Educational establishments. An electron technology materials, 2003, No.4, p. 54-56 (in Russian).</p> <p><b>15.</b> A.E. Atamuratov. Influence of the high-energy bremsstrahlung on field transistor threshold voltage. Uzbek Journal of Physics, 2003, V.5(№5-6), pp.356-358.</p> <p><b>8.</b> A.E.Atamuratov, H.-H. Wehmann. Determination of the longitudinal charge distribution at the Si-SiO<sub>2</sub> interface of MOSFET by C–V measurements;Materials of Second International Conference “ Fundamental and Applied Problems of Physics”, Tashkent (2004), p.222-224 .</p> <p><b>9.</b> A. E. Atamuratov, A. Yusupov, K. Babajanov . Distribution of surface carrier concentration in the cylindrical MOSFET with the built-in charge in oxide layer. Materials of Republican conference on Physical Electronics, Tashkent, November 2-4 (2005), p. 48 (in Russian).</p> <p><b>10.</b> A. E. Atamuratov, Charulata Barge, H.-H Wehmann. Features of the charged area image on a SiO<sub>2</sub> surface. Materials of Conference “Fundamental and Applied Problems of Physics”, Tashkent (2006), p. 146-148.</p> <p><b>11.</b> A. E. Atamuratov, D. U. Matrasulov, and P. K. Khabibullaev. Detection of a Charge Built in Oxide Layer of a Metal–Oxide–Semiconductor Field-Effect Transistor by Lateral C- V Measurement. Doklady Physics, 2007, Vol. 52, No. 6, pp. 322–325.</p>

- 12.** A.E. Atamuratov. Modeling of quantum wires in the interface layer of the semiconductor-oxide structures with charge built in oxide. Complex Phenomena in Nanoscale Systems. NATO Science for Peace and Security Series-B: Physics and Biophysics. Proceedings of the NATO Advanced Research Workshop on Recent Advances in Nonlinear Dynamics and Complex System Physics; From natural to Social Sciences and Security. Tashkent, Uzbekistan, 12-17 October 2008, p.229-237.
- 13.** A. N. Georgobiani , A. E. Atamuratov , U. A. Aminov , and T. A. Atamuratov. Tunable SiO<sub>2</sub>/Si-Based Nanostructures. Inorganic Materials, 2009, Vol. 45, No. 8, pp. 900–904.
- 14.** A. E. Atamuratov, D. Yu. Matrasulov, and P. K. Khabibullaev. Influence of the Field of the Built\_in Oxide Charge on the Lateral C–V Dependence of the MOSFET. Doklady Physics, 2010, Vol. 55, No. 2, pp. 52–54.
- 15.** J. D. Wei, S. F. Li, A. Atamuratov, H.-H. Wehmann, and A. Waag . Photoassisted Kelvin probe force microscopy at GaN surfaces: The role of polarity. Appl. Phys. Lett. **97**, 172111 (2010).
- 16.** A.E. Atamuratov, R. Granzner , M. Kittler, Z. Atamuratova, M. Halillaev, F. Schwierz . Simulation of Random Telegraph Noise in nanometer nMOSFET induced by interface and oxide trapped charge. NATO Advanced Research Workshop on Low Dimensional Functional Materials, October 15-19, 2012, Tashkent
- 17.** A.E. Atamuratov , Z. Atamuratova, M. Halillaev, G. Ghione. Simulation of carrier distribution in nanometer MNOSFET with single charge trapped in oxide and at SiO<sub>2</sub> – Si<sub>3</sub>N<sub>4</sub> interface. Materials of International conference Low dimensional nanoscale systems: quantum effects, particle transport and advanced materials. November 6-7,2012, Tashkent.
- 18.** Matyakubov H., Atamuratova Z. A., Abdikarimov A., Halillaev M., Atamuratov A.E. The method of estimation of single trapped charge position in nanometer MNOSFET oxide layer and Si-SiO<sub>2</sub> interface. Materials of International conference Fundamental and Applied Problems of Physics November 14-16,2013, Tashkent.
- 19.** A. Abdikarimov, G.Indalecio, E. Comesana, N. Seoane, K. Kalna, A.J. Garcia-Lourero, A. E. Atamuratov. Influence of device geometry on electrical characteristics of a 10.7 nm SOI-FINFET.in 17<sup>th</sup> International Workshop on Computational Electronics. IWCE 2014. pp.1-4. [Online]. Available: <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=6865877>
- 20.** A.E.Atamuratov, U.A.Aminov, Z.A. Atamuratova, M. Halillaev, A. Abdikarimov , H. Matyakubov. The lateral capacitance of nanometer MNOSFET with a single charge trapped in oxide layer or at SiO<sub>2</sub> - Si<sub>3</sub>N<sub>4</sub> interface. Nanosystems: physics, chemistry, mathematics, 2015, 6 (6), p. 837–842
- 21.** A.E. Atamuratov, A. Abdikarimov, M. Khalilloev, Z. A. Atamuratova , R. Rahmanov, A. Garcia-Loureiro, A. Yusupov, Simulation study of dibl effect in 25 nm soi-finfet with the different body shape, Nanosystems: Physics, Chemistry, Mathematics, 2017. 8 (1), p. 71–74
- 22.** A.Abdikarimov , A.E. Atamuratov, A. Yusupov , Simulation study of subthreshold slope

- in 25 nm SOI-FinFET with the different body shape. Simulation of DIBL effect in junctionless SOI MOSFETs with extended gate. *Doclady Uzb Academy* N 3, p.20-22, 2017.
23. A. E. Atamuratov, M. Khalilloev, A. Abdikarimov, Z.A. Atamuratova, M. Kittler, R. Granzner, F. Schwierz, Influence of non-uniform lateral interface defects distribution to the current-voltage characteristic of MOSFET. *Nanosystems: physics, chemistry, mathematics*, 2017, 8 (1), p. 75–78.
24. Atamuratov A.E., Abdikarimov A., Atamuratova Z.A., Xolillaev M., Yusupov A. Collection of papers (Urgench state university). Actual problems of modern science, education and training in the region 8-12 page, N1, 2017
25. A.E. Atamuratov, Z.A. Atamuratova, A. Yusupov, A. Ghani,. Characterising lateral capacitance of MNOSFET with localised trapped charge in nitride layer. *Results in Physics*, V.11, 2018, pp. 656–658..
26. Abdikarimov A.E., Yusupov A., Atamuratov A.E. Influence of the body shape and thickness of buried oxide to DIBL effect of SOI FinFET. “*Technical Physics letters*”, 2018, v44, N21, pp.22-28
27. Z. A. Atamuratova, A. Yusupov, B. O. Khalikberdiev, and A. E. Atamuratov Anomalous Behavior of Lateral C–V Characteristic of an MNOS Transistor with an Embedded Local Charge in the Nitride Layer. *Technical Physics*, 2019, Vol. 64, No. 7, pp. 1006–1009.
28. Atabek E. Atamuratov I, Mahkam M. Khalilloev, Ahmed Yusupov, A. J. Garcia-Loureiro, Jean Chamberlain Chedjou and Kyamakya Kyandoghère. Contribution to the Physical Modelling of Single Charged Defects Causing the Random Telegraph Noise in Junctionless FinFET. *Appl. Sci.* 2020, 10(15), 5327; doi:10.3390/app10155327
29. Ahmed Yusupov, Atabek E. Atamuratov, Azamat E. Abdikarimov, Jean Chamberlain Chedjou and Kyandoghère Kyamakya. The amplitude of RTN in nanometer SOI FinFET with different channel shape. *World Scientific Proceedings Series on Computer Engineering and Information Science Developments of Artificial Intelligence Technologies in Computation and Robotics*, pp. 1541-1548 (2020).
30. Atabek E. Atamuratov, Ahmed Yusupov, Zuhra A. Atamuratova, Jean Chamberlain Chedjou and Kyamakya Kyandoghère. Lateral Capacitance–Voltage Method of NanoMOSFET for Detecting the Hot Carrier Injection. *Appl. Sci.* 2020, 10(21), 7935; doi:10.3390/app10217935