



**DEPARTMENT OF PHYSICS, BIOPHYSICS, BIOMECHANICS AND
INFORMATIONAL TECHNOLOGIES**



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The Department of Physics at Tbilisi State Medical University was founded in 1937. The first head of department was professor Iona Mirtskhulava (1937-1952). Since 1952 department was under supervision of Associated Professor Alexander Tskhakaia during one year and then, since 1953 leadership was passed to Associated Professor Taras Gujua. In 1975 Professor Dimitri Kurdgeladze was elected as a head of the department.

Since 1966 course of Biophysics was taught at Physiology Department until 1982. After that this duty was transferred to Physics Department. In 1980 at Tbilisi State Medical University Department of Cybernetics was also founded. In 1992 these two departments were united and the multisectoral Department of Physics, Biophysics and Cybernetics was created. This department's staff carried out teaching courses of Medical Physics, Biophysics, Medical Informatics, Medical Equipment, Cybernetics and Clinical Biostatistics. In 1980-1990 head of the department was Professor Gaioz Vasadze. Since 1990 Doctor of Medical Sciences, Professor Alexandre Tsibadze became a head. Other members of the department were: Professor Tamar Sanikidze, Associated Professors Amiran Zaqaraia, Liana Mamulashvili, Ramin Antia, Teiumuraz Ioseliani, Senior Teachers Givi Khuitsishvili, Nikoloz Gotsiridze and Tinatin Kiknadze, Assistants Manoni Kobaidze, Mariam Mangoshvili, Tamaz Khutsishvili, Nino Intskirveli, Lali Khutsishvili.

In 2005 Departments of Department of Physics, Biophysics and Cybernetics was united with Department of Physiology. In 2007 Sports Academy joined Tbilisi State Medical University. This fact caused some structural-administrative changes: Department of Physics and Biophysics, alongside with newly joined Sports Academy's Department, was separated from Department of Physiology as an independent structure under the leadership of Professor Alexandre Tsibadze.



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In 2009 the department was divided into two directions: 1. Department of Biophysics and Physics, which was headed by Professor Tamar Sanikidze, 2. Department of Biomechanics, Mathematics and Informatics, which was headed by Professor Alexandre Tsibadze.

In 2009-2016 members of Department of Biophysics and Physics created new textbooks in both Georgian and English languages: “Membrane Biophysics” (2008, T. Sanikidze), “Medical Physics” (2009, T. Sanikidze, R. Antia), “Medical Physics and Biophysics (2014, A. Tsibadze, M. Kobaidze), “Medical Biomechanics and Kinesiology” (N. Gotsiridze), “Basics of High Mathematics” (2009, L. Khutsishvili), “Theory of Informatics and Mathematical Statistics in Medicine” (2007, A. Tsibadze, L. Khutsishvili). Lately textbooks of “Membrane Biophysics” and “Medical Physics” were modified as a 2 volume textbook of “Medical Biophysics and Physics”.

In 2013-2017 at Department of Biophysics and Physics was carried out Tempus IV project: “BME-ENA Biomedical Engineering Education Tempus Initiative in Eastern Neighbouring Area” (Project Number 543904-TEMPUS-1-2013-1-GR-TEMPUS-JPCR (2013-4512/001-001)), during which new Master’s Degree Program called “Biomedical Engineering” was created. Georgian Technical University and Kutaisi Akaki Tsereteli University also participated in this project.

In 2016 English version of textbook of “Biological and Medical Physics” v.1 (by T. Sanikidze), v.2 (by T. Sanikidze, R. Antia), was printed at West Pomerania Technical University in Poland with financial support of Tempus project.

The major priority of the Department is to create a novel, modern European standard teaching methods and to plant it into the teaching process. This task mainly associates with technical progress of Medical Radiology and general medical visualization methods in clinical practice. In this direction Department collaborates with Georgian National Academy of Sciences, Iv. Beritashvilis Center of Experimental Biomedicine and leading experts of International and Intergovernmental Organizations in the field of Radiation Safety.

Besides the main teaching course, there are also Elective Courses for students such as “Radiobiology and Radiation Risks for Health”, “Biomechanical Basics of Spa”, “Biophysics of Electromagnetic Radiation”; There’s postgraduate continuous Medical Educational Program “Safety in Diagnostic Radiology, Nuclear and Interventional Medicine”, This Program is approved by the Georgian Radiologists’ Association and confirmed by Ministry of Health, Labour and Social Affairs of Georgia. The Department also collaborates with TSMU’s Bakhutashvili Institute of Medical Biotechnology and, as mentioned before, with Beritashvili Center of Experimental Biomedicine. With the support of these Scientific Institutes Tamar Sanikidze participated in the following projects and headed PhD Programs: “Citrus extract – effective remedy for metabolic syndrome correction” (2008), “Studying anticarcinogenic activity of polyphenol-rich Georgian meat spices in model system of Jurkat cell cultures” (2009-2011), “Correction of structural limbic disorders, caused by Tuloul effects, by antioxidant Miradol at early stages of rats postnatal development” (2010-2012), “Demonstration of rats limbic structural disorders, caused by prenatal ethanol intoxication, at early stages of postnatal development” (2010-2012), “Studying low-dose ethanol’s stimulating effect on limbic system neurogenesis, metabolism and behavior at different stages of white rats’ postnatal development” (2015-2018).



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In 2014-2017 Department Biophysics and Physics participated in the organization of Season Schools in Medical Physics at TSMU (“Physical principles of modern medical diagnostic tools”, “Modern tendencies in medical visualization and patient and staff safety”).

With active participation of Department Biophysics and Physics International Scientific-Practical conferences were held, in which Georgian and foreign specialists took part. These conferences were: “Radiation Medicine XXI century –challenges and perspectives” (2015), “Modern approaches of Ecologic Health Risks Management in urban zones” (2017), Systemic Biology - The Fundamental Base of 21st Century Medicine and Healthcare (2018) (the last one financially was supported by City Hall of Tbilisi). All these projects helped to integrate TSMU’s academic and scientific staff’s potential with International Educational and Research Platform.

In 2017 two branches, Department of Biophysics and Physics and Department of Biomechanics, Kinesiology and Informatics were united into one structure called Department of Physics, Biophysics, Biomechanics and Informative Technologies and its’ head is Professor Tamar Sanikidze.

Academic staff of the Department of Physics, Biophysics, Biomechanics and Information Technologies Currently: Head of the Department - Professor Tamar Sanikidze, Associate Professors: Nikoloz Gotsiridze, Nino Intskirveli, Lali Khutsishvili, Nino Tskhvediani; Assistant Professors: Eka Shekiladze, Maia Mantkava, Sophio Kalmakhelidze; Invited teachers: Elene Pataridze, Khatuna Porchkhidze, Zurab Sharashenidze, Giorgi Ormotsadze, Irakli Tchkhikvishvili, Tsiala Meshvildishvili, Mariam Mangoshvili, Maka Korkelia, Liana Obolashvili, Lali Nadiradze, Maka Buleishvili, Giorgi Kvaratskhelia, Elene Zhorzholadze, Nino Mirianashvili, Marika Gamkrelidze, Tamar Tabatadze, Tinatin gotsiridze; Laboratory assistants: Elene Pataridze and Lia Kazalakashvili.