INSTITUTE OF BIOMEDICAL ENGINEERING AND NANOTECHNOLOGIES

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DIVISION OF MEDICAL ENGINEERING AND PHYSICS

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RESEARCH TOPICS

- Physics of Electron Emission and Electron Spectroscopy of Biotissue and Biomaterials (Prof. Jurijs Dehtjars)
- Structure, Electron Properties and Behaviour of Biotissue and Biomaterials (Prof. Jurijs Dehtjars)
- Application of Electron Emission and Electron Spectroscopy for Spatially Resolved Radiation Dosimetry (Assoc.Prof. Aleksejs Kataševs)

FUNDED PROJECTS		
Title of project	**Source of funding**	**Project leader (RTU)**
Multifunctional Percolated Nanostructured Ceramics Fabricated from Hydroxylapatyte - PERCERAMICS	EU FP 6	Prof. Jurijs Dehtjars
Ferroelectricity on Molecular Level	EU INTAS	Prof. Jurijs Dehtjars
International Atomic Energy Agency project: LAT 9006	IAEA	Prof. Jurijs Dehtjars
Electronic Properties of Hydroxylapatite Nanoparticles Ensemble	Latvian Council of Science	Prof. Jurijs Dehtjars
Dosimetric Properties of Inorganic Solid Nanolayers	Latvian Council of Science	Assoc. Prof. Aleksejs Kataševs
Informativity of Exoemission Analysis on Paleopathalogical Changes of Bones Belonging to Different Centuries	Latvian Council of Science	Prof. Jurijs Dehtjars
Development of Advanced Functional Materials for Microelectronics, Nanoelectronics, Photonics, Biomedicine and Constructive Composites and Relevant Technologies. Subcomponent 3.4. Prspective Biomaterials and Medical Technologies	State Research Programme	Prof. Jurijs Dehtjars
Application of Reflected Infrared Laser Beam for Non-contact 3D Positioning	Ministry of Education and Science and RTU	Asoc. prof. Aleksejs Kataševs

Semiconductor and Virus Like Particle Self-assembled System	Ministry of Education and Science and RTU	Prof. Jurijs Dehtjars
Electronic Characteristics of Chemically and Physically Modified Hydroxylapatyte Surface	RTU	Prof. Jurijs Dehtjars

8.4.2. DIVISION OF ELECTRONICS AND VACUUM

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Engineer		Aleksandrs Sudnikovičs	
Sen.Lab.Assistant		Anna Kačanovska	

RESEARCH TOPICS

- Physics and Applications of Electron Spectroscopy of Organic and Inorganic Systems (Prof. Genādijs Sagalovičs)
- Application of Emission Spectroscopy for Optimisation of Reliability Indices of Manufactured Components (Prof. Genādijs Sagalovičs)
- Application of Emission Spectroscopy for Visualisation of Surface Peculiarities (Assoc.Prof. Aldis Balodis)

FUNDED PROJECTS		
Title of project	**Source of funding**	**Project leader (RTU)**
Optimisation of the Component Manufacturing Technology by Means of Exoemission Defectoscopy	Latvian Council of Science	Prof. Genādijs Sagalovičs
Research of Ultrathin Multilayer Al_2O_3 and Si Nanopoint Structure Trap Thermal Stability by Application of High Temperature Activation, TSEE and Disparity Methods of Contact Potential	Commercial Research Project	Prof. Genādijs Sagalovičs

SCIENTIFIC EQUIPMENT (ESF SUPPORT)
Near UV photoemission / exoemission spectrometer; Auger spectrometer (surface topography is available); Equipment for electron emission measurement for loaded materials (strain); Equipment for electron emission topography of the material surface (resolution 10 – 50 μm); Atomic force microscope (Kelvin probe mode is available); Diamond saw microtome (30 – 100 μm). Spectrophotometre Helios-Gamma; Binocular microscope for biological research BA-450; Stereomicroscope for research of materials SMZ-168TL