FACULTY OF MECHANICAL ENGINEERING

INSTITUTE OF BIOMEDICAL ENGINEERING

No.	Project title	Principal Investigator	Type of competition	Project's duration	Granted founds
4.	Rheological measurements of DNA hydrogels with cells and cell-mimic particles	Dawid Łysik, PhD, Eng. Division of Biomaterials and Medical Devices Engineering	MINIATURA 7	05.09.2023-04.03.2025	44 550
3.	The assesment of texture analysis of three-dimensional Computed Tomography (CT) images to detect radiological symptoms of tooth resorption and hypercementosis on the equine head model in the course of the EOTRH syndrome	Marta Borowska, PhD, Eng. Division of Biomechatronics	MINIATURA 6	03.09.2022-02.09.2023	49 995
2.	Glass fibers doped with lanthanide ions with hybrid: bioactive and sensing properties	Agata Baranowska, MSc Division of Biomaterials and Medical Device Engineering	PRELUDIUM 16	11.07.2019-10.07.2025	192 600
1.	Biomechanical analyses of the implantation system for direct skeletal attachment of limb prosthesis	Piotr Prochor, MSc Division of Biomaterials and Medical Device Engineering	PRELUDIUM 12	24.08.2017-23.08.2020	72 360

INSTITUTE OF MECHANICAL ENGINEERING

No.	Project title	Principal Investigator	Type of competition	Project's duration	Granted founds
34.	Experimental research and numerical modelling of deformation and fracture processes of metamaterials based on titanium alloys manufactured by additive methods Project implemented in the Scientific Consortium: Leader – Gdańsk University of Technology, Partner – Bialystok University of Technology	Michał Doroszko, PhD, Eng Department of Mechanics and Applied Computer Science	OPUS 29	04.02.2026-2029	1 678 950 incl. BUT: . 750 540
33.	Nonlinear Analyses and Predictive Modeling in the Development of Advanced Glass-Ionomer Cements (Tribology Innovation for Performance – TIP)	Magdalena Łępicka, PhD, Eng Department of Materials and Production Engineering	SONATA 20	03.07.2025-02.07.2028	1 295 640
32.	Application of three-dimensional quantitative fractography for analysis of structural materials fatigue life under multiaxial loading, taking into account creep pre-deformation and elevated temperature Project implemented in the Scientific Consortium: Leader - Gdańsk University of Technology, Partner – Bialystok University of Technology	Adam Tomczyk, PhD, Eng Department of Mechanics and Applied Computer Science	OPUS 27	03.02.2025-02.02.2028	703 460, incl. BUT 102 000
31.	Thin polymer film platform for controlled production of small agglomerates from primary nanoparticles for mechanical testing	Maciej Łojkowski, PhD, Eng Department of Materials and Production Engineering	MINIATURA 8	11.10.2024-10.10.2025	30 998
30.	Surface coating and microstructuring for compound functionalized biomaterials in dentistry	Prof. Krzysztof Jan Kurzydłowski, DSc, Phd, Eng. Department of Materials and Production Engineering	M-ERA.NET 3	01.07.2022-31.10.2025	898 572
29.	Study of the intensity of generation of wear particles at the sliding contact of steel-plastic	Wojciech Tarasiuk, PhD, Eng. Department of Mechanics and Applied Computer Science	MINIATURA 5	02.12.2021-01.12.2022	20 460
28.	Two phase flow patterns in the microchannel with cross-flowing system	Grzegorz Górski, PhD, Eng. Department of Materials and Production Engineering	MINIATURA 4	12.12.2020-11.12.2021	15 400
27.	Fracture in notched elements made of plastic, under simple and complex loading conditions	Elżbieta Bura, MSc Department of Mechanics and Applied Computer Science	PRELUDIUM 17	24.02.2020-23.02.2024	194 860
26.	The method of rotating shaft damage identification using the proprietary diagnostic model based on difference in phase shifts of the signals	Rafał Grądzki, PhD, Eng. Department of Automatic Control and Robotics	MINIATURA 3	19.12.2019-18.12.2020	48 400

No.	Project title	Principal Investigator	Type of competition	Project's duration	Granted founds
25.	Metal Matrix Composites with natural filler	Izabela Zgłobicka, PhD, Eng. Department of Materials and Production Engineering	SONATA 14	24.07.2019-23.06.2023	417 300
24.	Modelling of damage accumulation and fracture of structural materials under complex fatigue loading, including creep pre-deformation and elevated temperature	Prof. Andrzej Seweryn, DSc, PhD, Eng. Department of Mechanics and Applied Computer Science	OPUS 15	21.01.2019-20.07.2023	823 120
23.	Study of three-dimensional trajectories of gas bubble motion in liquid	Jakub Augustyniak, PhD, Eng. Department of Mechanics and Applied Computer Science	PRELUDIUM 15	21.01.2019-20.01.2023	136 840
22.	Anisotropy of fatigue damage propagation in Ti6Al4V titanium alloys using 3D printing	Anna Falkowska, PhD, Eng. Department of Mechanics and Applied Computer Science	MINIATURA 2	03.11.2018-02.11.2019	42 416
21.	Plastic strain energy dissipation in the vicinity of stress concentrators in composite materials	Grzegorz Rogowski, PhD, Eng. Department of Materials and Production Engineering	MINIATURA 2	16.10.2018-15.10.2019	26 400
20.	Stability of micromembrane-enhanced of boiling in minichannel	Prof. Romuald Mosdorf, DSc, PhD, Eng. Department of Mechanics and Applied Computer Science	OPUS 14	17.07.2018-16.07.2023	392 984
19.	Nonlinear mathematical models and experimental investigations of frictional heating of the railway braking system	Prof. Michał Kuciej, DSc, PhD, Eng. Department of Mechanics and Applied Computer Science	OPUS 14	26.06.2018-25.06.2023	625 200
18.	Solution on the problem of determination of temperatures at sliding contacts	Assoc. Prof. Oleksii Nosko, DSc, PhD, Eng. Department of Mechanics and Applied Computer Science	SONATA 13	28.03.2018-27.12.2021	496 300
17.	Effect of Surface modification of metallic biomaterials on their performance	Magdalena Łępicka, PhD, Eng. Department of Materials and Production Engineering	PRELUDIUM 13	19.01.2018-18.01.2022	125 336
16.	Investigations of heat transfer and flow resistance in packed bed of fruits and vegetables	Adam Łapiński, MSc Department of Machine Design and Thermal Engineering	PRELUDIUM 13	19.01.2018-18.07.2020	96 160
15.	Experimental investigation of the dynamic stabilization of the pendulum using feedback control	Maciej Ciężkowski, PhD, Eng. Department of Automatic Control and Robotics	MINIATURA 1	4.01.2018-3.01.2019	16 940
14.	Analysing the optimal finger geometry parameters in presence of uncertainties and constraints imposed by grasping tasks	Adam Wolniakowski, PhD, Eng. Department of Automatic Control and Robotics	MINIATURA 1	23.12.2017-22.12.2018	22 000
13.	Ductile fracture of elements with notches under non-proportional complex state loading	Łukasz Derpeński, PhD, Eng. Department of Mechanics and Applied Computer Science	MINIATURA 1	13.12.2017-12.12.2018	49 500
12.	Experimental investigation of heat transfer in two-phase injector	Kamil Śmierciew, PhD Eng. Department of Machine Design and Thermal Engineering	MINIATURA 1	13.12.2017-12.12.2018	41 250
11.	Studies of fatigue damage accumulation under low-cycle load conditions, including elevated temperature	Jarosław Szusta, PhD, Eng. Department of Mechanics and Applied Computer Science	MINIATURA 1	23.11.2017-22.11.2018	50 000
10.	A new concept of a modular unmanned aerial vehicle	Leszek Ambroziak, PhD, Eng. Department of Automatic Control and Robotics	MINIATURA 1	23.11.2017-22.11.2018	47 707
9.	Numerical modelling of fracture process of porous metals based on microtomographic images	Michał Doroszko, MSc Department of Mechanics and Applied Computer Science	PRELUDIUM 12	09.08.2017-08.08.2021	136 220
8.	Effect of co-doping bismuth-germanate glasses with lanthanides on their luminescence properties in the 2 – 3 μm region	Tomasz Ragiń, MSc Department of Materials and Production Engineering	PRELUDIUM 12	20.07.2017-19.07.2019	88 800
7.	Numerical Modelling of the frictional heating in the braking system taking into account mutual dependence of the velocity, temperature and thermal sensivity of materials	Piotr Grześ, PhD, Eng. Department of Mechanics and Applied Computer Science	SONATA 10	11.07.2016-10.07.2019	188 118

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6.	Thermal problem of friction for strip-semi-space with thermal sensitivity materials	Ewa Och, PhD, Eng. Department of Mechanics and Applied Computer Science	PRELUDIUM 10	07.07.2016-06.07.2018	69 760
5.	Investigation into friction and wear of implant alloys and corundum ceramics in fretting conditions	Marcin Klekotka, MSc Department of Materials and Production Engineering	PRELUDIUM 9	15.03.2016-14.03.2019	149 984
4.	Flow boiling instabilities in parallel minichannels	Hubert Grzybowski, MSc Department of Mechanics and Applied Computer Science	PRELUDIUM 9	04.02.2016-03.02.2019	64 800
3.	Selected problems of thermomechanics for materials with temperature dependent properties	Assoc. Prof. Dariusz Perkowski, DSc, PhD, Eng. Department of Mechanics and Applied Computer Science	SONATA 6	20.08.2014-19.08.2017	94 550
2.	The dynamics of liquid movement inside the nozzle during the bubbles departures	Paweł Dzienis, MSc Department of Mechanics and Applied Computer Science	PRELUDIUM 7	28.01.2015-27.01.2018	107 810
1.	Micromechanical modelling of failure in fiber-reinforced polymer matrix composites	Marek Romanowicz, PhD, Eng. Department of Mechanics and Applied Computer Science	SONATA 2	03.09.2012-02.09.2017	297 863