


Scientific profile structure (portfolio) of potential research supervisor as participant of the International Olympiad in the Association "Global universities" on the postgraduate studies track in 2023-2024.

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| University | Samara National Research University |
| English proficiency | Advanced |
| Educational program and field of the educational program for which the applicant will be accepted | 2.5.15. Thermal, electric rocket engines and power plants of aircraft |
| List of research projects of a potential supervisor | Development of computer-aided means for concept designing of aircraft engines and power plants (supervisor). |
| List of possible research topics | <ul style="list-style-type: none"> ● Conceptual design of hybrid power plants ● Simulation of gas turbine engine operation. ● Research of perspective configurations of aircraft engines. ● Virtual tests of a gas turbine engine. |
|  <p>Research supervisor: Andrey Yu. Tkachenko, PhD at Samara University</p> | Mechanics. General mechanical engineering |
| | Supervisor's research interests: Research and optimization of gas turbine engine workflow. Development of methods and computer-aided means for concept designing of aircraft engines and power plants. |
| | Research highlights: <ul style="list-style-type: none"> ● Professional, responsive and collaborative research team. ● Advanced models and methods for calculating the working process of gas turbine power plants are being developed. ● A unique platform for computer modeling of complex technical systems has been created. ● The research team is constantly involved in the implementation of research and design work. ● The results of scientific work are constantly published in scientific journals and reported at leading professional conferences. |
| | Supervisor's specific requirements: None |
| | Supervisor's main publications: |

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| | <ol style="list-style-type: none"> 1. Omar Kh. , Kuzmichev V. S. , Tkachenko A.Y. Optimization the main thermodynamics parameters of the aviation turbofan engines with heat recovery in the aircraft system // Journal of Physics: Conference Series. — 2021. — Vol. 1745. Issue 1. 2. Omar Kh. , Kuzmichev V. S. , Tkachenko A.Y. Thermodynamic parameters optimization of an aviation three-shaft turbofan engine with an intercooler and a recuperator under flight condition // Journal of Physics: Conference Series. — 2021. — Vol. 1891. Issue 1. 3. Thomas Jayachandran A.V., Tkachenko A.Y., Omar Kh. etc. Performance computing of an open cycle micro gas turbine powerplant using data aided modeling and simulation // Journal of Physics: Conference Series. — 2021. — Vol. 1745. Issue 1 4. Rybakov, V.N., Kuz'michev, V.S., Tkachenko, A.Y. et al. A Method of Working Process Parameter Optimization of a Unified Engine Core and a Gas Turbine Engine Family Being Created on Its Basis. Russian Aeronautics. 61, 78–83 (2018). 5. Estimation of cooling flow rate for conceptual design stage of a gas turbine engine // Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy 2021. — Vol. 235. Issue 8. — P. 2014-2021. |
| | <p>Results of intellectual activity</p> <ul style="list-style-type: none"> – Development of the software for concept designing of gas turbine power plants. – Theoretical foundations of optimal workflow of aircraft and energy power plants. – Theory and mathematical models of combined cycle power plants. – Development of optimal designing methods for aircraft gas turbines. – Creation of effective design technologies of high-power gas turbines for energy power plants. – Concept designing of small-scale gas turbine engines. – Investigation of perspective technologies for advanced aviation power plants. <p>Patents:</p> <ol style="list-style-type: none"> 1. Software for thermogasodynamic calculation and analysis of gas turbine engines and power plants ASTRA-PR, patent No. 2017614042 received 13.04.2017 2 Software module for thermogasodynamic calculation of a turbojet engine for Matlab, patent No. 2018615870 received on 25.05.2018 3 Software module for thermogasodynamic calculation of a turbofan engine for Matlab, patent No. 2018615724 received on 05/22/2018 4 CAE-software ASTRA-T-1 for closed-cycle gas turbine conceptual design, patent No. 2019618046 received on 26.07.2019 5 Software module for calculating thermodynamic parameters designed for Matlab, patent No. 2020667533 7 ASTRA-5.0.t-microGTD, patent No. 2021665452 received on 09/27/2021 8 ASTRA-7, patent No. 202166888 received on 11/22/2021 9 ASTRA-8-MGTD, patent No. 2021668887 received on 11/22/2021 |