Portfolio of potential scientific advisors of participants of the international Olympiad Open Doors: Russian Scholarship Project of the Association "Global Universities" on the track of postgraduate studies in 2021-2022.

The university	**Novosibirsk State University (NSU)**
English proficiency	**Free**
The direction of training, on which will be accepted a graduate student	**01.04.14 - Thermal physics and theoretical heat engineering**
The code of the direction of training, for which a graduate student will be accepted	**03.06.01 Physics and Astronomy**
List of research projects of a potential supervisor (participation / leadership)	**Current projects:** **RSF 20-19-00722 "Interphase heat and mass transfer on a microscale and dynamics of the contact line with significant heating" (supervisor)** **RFFR-BRICS 18-53-80016 "Biomedical silicon carbide coatings obtained by chemical vapor deposition" (performer)**
List of possible research topics	Microscale heat and mass transfer, Contact line dynamics, Evaporation, Boiling, Spray cooling
 Research supervisor: Elizaveta Gatapova, Candidate of Science/PhD Kutateladze Institute of Thermophysics SB RAS	**Heat transfer and phase transformations in microsystems**
	Supervisor's research interests (more detailed description of scientific interests): heat transfer enhancement, thin liquid films, evaporation, cooling of microelectronics, three-phase contact line, high heat flux, nonequilibrium processes, wettability, liquid droplet, nano-structured surfaces, drag reduction, microfluidics, experimental and theoretical works.
	Research highlights (if available): *It is necessary to indicate the distinctive features of this program, which would distinguish it from the rest. (Use of unique equipment, interaction with foreign scientists and research centers, financial support for a graduate student, etc.)* Investigations based on optical measurement of thin layers of liquid, high-speed measurements, precision temperature measurement to obtain the fundamental foundations for creating micron-sized cooling systems are proposed. Calculations based on kinetic methods. Interaction with leading foreign researchers in this field of science, financial support for a graduate student on the topics of the project.
	Supervisor's specific requirements: The section is filled in if there are requirements for a graduate student (mandatory background of the candidate / discipline that he must have mastered / methods that he must own / be able to use some specific software, etc.) • *Knowledge of English* *For students, who plan to do experiments:* • *Basic knowledge of optical techniques (interferometry, shadow)*

	• *Be friendly/or ready to work with temperature measuring systems and software* *For students, who plan to do calculations:* • *Knowledge of at least one technique: Boltzmann kinetic equations, Direct Simulations Monte-Carlo, Molecular Dynamics Simulations*
	Supervisor's main publications (indicate the total number of publications in journals indexed by Web of Science or Scopus over the past 5 years, write up to 5 most significant publications, indicating the output data): **37 Scopus publications from 2016-2021.** • **Gatapova E.Ya., Sahu G., Khandekar S., Hu R.,** Thermal Management of High-Power LED Module with Single-Phase Liquid Jet Array, **Applied Thermal Engineering**, 184, 116270 (2021), https://doi.org/10.1016/j.applthermaleng.2020.116270 • **Gluzdov D.S., Gatapova E.Ya.,** Friction reduction by inlet temperature variation in microchannel flow, **Physics of Fluids,** 33, 062003 (2021), https://doi.org/10.1063/5.0051998 • **Gatapova E.Ya., Kabov O.A., Ajaev V.S.,** Evaporation and interface dynamics in microregion on heated substrate of non-uniform wettability, **International Journal of Heat and Mass Transfer,** 142 (2019), 118355 https://doi.org/10.1016/j.ijheatmasstransfer.2019.07.005 • **Gatapova E.Ya., Shonina A.M., Safonov A.I., Sulyaeva V.S., Kabov O.A.,** Evaporation dynamics of a sessile droplet on glass surfaces with fluoropolymer coatings: Focusing on the final stage of thin droplet evaporation, **Soft Matter,** 2018, 14, 1811-1821, http://dx.doi.org/10.1039/c7sm02192e • **Gatapova E.Ya., Graur I.A., Kabov O.A., Aniskin V.M., Filipenko M.A., Sharipov F., Tadrist L.,** The temperature jump at water – air interface during evaporation, **International Journal of Heat and Mass Transfer** 104 (2017) 800–812 http://dx.doi.org/10.1016/j.ijheatmasstransfer.2016.08.111