

University	National University of Science and Technology MISIS
Level of English	Intermediate
Field of study and degree program of the doctoral student to be admitted	2.6.17 – <i>Materials Science</i> ; 2.8.9 – <i>Mineral Processing</i> .
Research projects of the potential research supervisor	Grant RSF No. 24-29-00672 on the topic: "Study of the kinetics of hydrogen reduction of hematite ores to magnetite and the evolution of the structure in vortex layer devices"
Suggested topics for research	<i>Development of technological bases for obtaining composite materials from metallurgical production waste.</i> <i>Development of technological bases for obtaining magnetic materials from metallurgical production waste.</i> <i>Development of self-cleaning filters for water and air purification based on nanomaterials.</i> <i>Development of approaches to increasing the strength and improving the metallurgical properties of iron ore pellets.</i> <i>Theoretical and experimental justification of the use of magnetic pulse treatment to increase the efficiency of ore processing.</i> <i>Theoretical and experimental bases for the use of hydrogen for the processing of iron ores.</i> <i>Development of a digital model using elements of artificial intelligence to control the technological process in a flotation system.</i>
 Research supervisor: Yury V. Konyukhov, Doctor of Technical Sciences (Higher Attestation Commission)	<i>Engineering and Technology</i>
	Potential supervisor's research interests <i>The development of new materials with specified functional and structural properties, as well as the recycling of technogenic waste, are important scientific and practical tasks. The scientific interest in the field of mineral processing is driven by the scale of production and the pressing issues related to the depletion of raw materials and the need to improve the efficiency and environmental friendliness of production.</i>
	Distinctive characteristics of research (if any) <i>MISIS University is equipped with modern research equipment necessary for carrying out research and development at the highest global level. Contacts with scientists from India, China, Vietnam, Kazakhstan, Uzbekistan, etc. are implied during fulfillment of the project.</i>
	Requirements of the potential research supervisor (if any) <i>The applicant must have a technical education, experience working on research facilities, at least 3 publications in Scopus/WoS journals, and the ability to achieve results.</i>
	Over the past 5 years, 33 articles have been published in journals indexed by Web of Science, Scopus, and RSCI. H-index (Scopus) is 10. Key publications of the potential research supervisor 1. Khanna, R.; Konyukhov, Y.; Zinoveev, D.; Li, K.; Maslennikov, N.; Burmistrov, I.; Kargin, J.; Kravchenko, M.;

	Mukherjee, P.S. <i>Production of Soft Magnetic Materials Fe-Si and Fe-Si-Al from Blends of Red Muds and Several Additives: Resources for Advanced Electrical Devices</i>. Sustainability 2025, 17, 1795. https://doi.org/10.3390/su17051795 2. Konyukhov, Y.V., Kamali, S.Nguyen, etc <i>Size dependence of magnetic properties of Fe, Co and Ni nanoparticles prepared by the chemical-metallurgical method using surfactants Nano-Structures and Nano-Objects</i>, 2023, 33, 100943 3. Khanna R, Konyukhov Y, Zinoveev D, Jayasankar K, Burmistrov I, Kravchenko M, Mukherjee PS. <i>Red Mud as a Secondary Resource of Low-Grade Iron: A Global Perspective</i>. Sustainability. 2022; 14(3):1258. https://doi.org/10.3390/su14031258 4. Kargin D.B., Konyukhov Y.V., Biseken A.B., Lileev A.S., Karpenkov D.Y. / <i>Structure, Morphology and Magnetic Properties of Hematite and Maghemite Nanopowders Produced from Rolling Mill Scale // Steel in Translation</i>, 2020, 50(3), <i>cmp.</i> 151–158. 5. Konyukhov, Y.V. <i>Heavy-Metal Extraction from Wastewater by Means of Iron Nanopowder</i>. Steel Transl. 48, 135–141 (2018). https://doi.org/10.3103/S0967091218020080
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