

STREKALINA DARIA MIKHAILOVNA

Research profile (portfolio) of potential research supervisor of post-graduate track participants in the Open Doors: Russian Scholarship Project

UNIVERSITY	MOSCOW POLYTECHNIC UNIVERSITY (Moscow Polytech)
Level of English proficiency	Advanced
Educational program and field of the educational program for which the applicant will be accepted	2.6.17 Materials Science
List of research projects of the potential supervisor	• Government contractor under State Contract No. H.4N.241.09.21.1104 dated 28.04.2021, “Development of additive technologies for printing metallic and composite products using equipment with high-temperature build-chamber heating (2021 Phase).” • Contractor within the Federal Target Program “Development of the Defense-Industrial Complex of the Russian Federation for 2011–2020” on the project: “Development of a manufacturing technology for high-strength aluminum alloy castings with enhanced physical and mechanical properties by using nano-powders for advanced rocket and space technology control systems.” • Executive in charge of the research project: “Development of a technology for producing novel materials through alternating combined pulsed plasma deposition and ion beam bombardment (2020 Phase),” implemented under State Contract No. H.4φ.241.09.20.1086. • Contractor in the project: “Development of additive manufacturing technologies for printing metallic and composite products using equipment with high-temperature build-chamber heating (2021 Phase).” • Member of the LHCb and SHiP Collaborations at the European Organization for Nuclear Research (CERN). • Project Manager for the development of research infrastructure at NUST MISIS (2019–2020).
List of the topics offered for the prospective research	• Development of technologies for manufacturing complex hard-alloy components for particle detectors used in Mega Science research facilities. • Development of technologies for manufacturing complex hard-alloy components for particle detectors deployed at large-scale industrial facilities. • Investigation of the properties of additively printed components for medical applications. • Study of the performance characteristics of integrated additive manufacturing technologies for component production. • Modeling of metallic matrix properties for detector physics applications. • Development of advanced technologies for next-generation physics research.



Research supervisor:
Strekalina Daria Mikhailovna,
PhD in Chemistry
(MISIS University)

Field of research

2.05.03 **Characterization & testing** (Испытания в материаловедении)

2.05.01 **Materials science** (Науки о материалах)

Supervisor's research interests

Development of technologies for manufacturing complex components for particle detectors used in Mega Science facilities; research into advanced technologies for medical physics; and the creation of novel alloys and coatings to enhance hardness, corrosion resistance, and wear resistance.

Research highlights

The research is conducted within an international collaboration, providing opportunities to engage with leading scientists from around the world in the project's field. The university offers the research infrastructure necessary to carry out the proposed studies.

Knowledge of metal science, general physics

Supervisor's specific requirements

Supervisor's main publications

The total number of publications in journals indexed by Web of Science, Scopus, and RSCI over the past five years

220 publications (h-index – 35).

Supervisor's main publications

1. Andrey A. Aksenov, Ilya V. Bardin, Darya M. Strekalina, Vitali V. Doroshenko, Egor V. Yakushko, Alexandr A. Chirkunov, Vera V. Ereemeev, The investigation of the influence of electric mode of micro-arc oxidation (MAO) on the structure, phase composition and corrosion properties of AlCa_{2.5}Mn_{1.5} aluminium alloy sheets with MAO coating of different thickness, Surface and Coatings Technology, Volume 519, 2026.
2. А. А. Аксенов, В. В. Дорошенко, Д. М. Стрекалина, И. В. Бардин, Е. В. Якушко, Исследование структуры листов сплава системы Al-Ca-Mn, покрытых методом микродугового оксидирования Non-ferrous Metals, 2025.
3. Vitali V. Doroshenko, Leonid Gorlov, Andrey A. Aksenov, Anastasiya Fortuna, Alexey S. Prosviryakov, Stanislav Cherkasov, D. M. Strekalina, Impact of Calcium Addition on Microstructural and Mechanical Properties of Al-3% Mg-0.8% Mn Alloy Under Different Treatment Paths, Metals and Materials International 31(4), 2025, DOI:10.1007/s12540-024-01885-5.
4. E. Andreev, P. Apel, N. Konovalova, N. Okateva, N. Polukhina, G. Sadykov, N. Starkov, E. Starkova, D. Strekalina, M. Chernyavskiy, T. Shchedrina / Thermal properties of glass detectors for heavy ion registration, Technical Physics, 2025, Vol. 70, No. 1, pp. 174-182 DOI: 10.61011/JTF.2025.01.59478.272-24

5. Николай В. Летягин, Торгом К. Акопян, Александр А. Сокорев, Иван В. Шкалей, Станислав О. Черкасов, Виталий В. Дорошенко, Татьяна А. Свиридова, Александр Ю. Чурюмов Plasma Electrolytic Oxidation of Al-Zn-Mg-Ni-Fe “Nikalin” Alloys Metals, 2024
6. Дорошенко В.В., Аксенов А.А., Стрекалина Д.М., Горлов Л.Е. Влияние кальция на фазовый состав, структуру и упрочнение деформируемого сплава Al-3,3%Mg-0,7%Mn, Цветные металлы, 2024.
7. Дорошенко В.В., Аксенов А.А., Цыденов К.А., Стрекалина Д.М., Якушко Е.В., Горлов Л.Е. Изучение влияния кальция на физико-механические и технологические свойства деформируемого сплава Al-3%Mg-0,8%Mn, Металлург, 2024.

Results of intellectual activity

Three Know-Hows