

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

<b>UNIVERSITY</b>	<b>MOSCOW POLYTECHNIC UNIVERSITY (Moscow Polytech)</b>
<b>Level of English proficiency</b>	Fluent
<b>Educational program and field of the educational program for which the applicant will be accepted</b>	2.5. Mechanical Engineering 2.5.5. Technology and Equipment for Mechanical and Physical-Technical Processing
<b>List of research projects of the potential supervisor</b>	<ul style="list-style-type: none"> <li>• Government contractor under contract № H.4N.241.09.21.1104 dated 28.04.2021 on “Development of additive technologies for printing metal and composite products using equipment with high-temperature heating of the working volume. Stage 2021”.</li> <li>• Contractor under the federal target program “Development of the Military-Industrial Complex of the Russian Federation for 2011-2020” in the sphere of “Developing technologies of manufacturing highly-resistant aluminum-alloy casts from aluminum alloys and improving physical-and-mechanical properties by using nano-powders for automation frames and control systems of promising prototypes of rocket and space products”.</li> <li>• Executive in charge of the scientific-research work “Development of technologies for obtaining new materials by alternate, joint pulsed plasma deposition and bombardment with ion beams. Stage 2020” under state contract № H.4φ.241.09.20.1086.</li> <li>• Contractor under the federal target program “Development of additive technologies for printing metal and composite products using equipment with high-temperature heating of the working volume. Stage 2021”.</li> <li>• Member of “LHCb” and “SHiP” collaborations at the European Organization for Nuclear Research (CERN).</li> <li>• Project manager for the creation of infrastructure at NUST MISIS 2019-2020.</li> </ul>
<b>List of the topics offered for the prospective research</b>	<ul style="list-style-type: none"> <li>• Creating technologies for producing complex parts from hard alloys for particle detectors in Mega Science installations.</li> <li>• Creating technologies for producing complex parts from hard alloys for particle detectors in medical physics.</li> <li>• Study of the properties of component parts produced by means of additive printing for medical installations.</li> </ul>



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

- Forming hard coatings and research into their properties for medical installations.
- Study of the characteristics of integrated technology for additive manufacturing of parts.
- Modeling the properties of metal matrices for detector physics.
- Creation of new technologies for new physics.

### Research area

**1.03.05 Physics, applied** (*Прикладная физика*)

### Supervisor's research interests

Creation of technologies for producing complex parts for particle detectors in Mega Science installations, research in the field of prospective technologies for medical physics, creation of new alloys and coatings to increase hardness, corrosion resistance and wear resistance.

### Research highlights

The research is carried out in an international collaboration, the opportunity to interact with world scientists on the subject of the project.

### Supervisor's specific requirements

Knowledge of metal science, general physics

### Supervisor's main publications

158 publications (h-index – 26).

1. Angular analysis of the rare decay  $B_s^0 \rightarrow \phi \mu + \mu^-$  (2021)  
Journal of High Energy Physics, 2021 (11), статья № 43
2. Branching Fraction Measurements of the Rare  $B_s^0 \rightarrow \phi \mu + \mu^-$  And  $B_s^0 \rightarrow f_2' (1525) \mu + \mu^-$  Decays (2021)  
Physical Review Letters, 127 (15), статья № 151801
3. Observation of a  $\Lambda b^0 - \Lambda^{\bar{b}0}$  production asymmetry in proton-proton collisions at  $\sqrt{s} = 7$  and 8 TeV (2021)  
Journal of High Energy Physics, 2021 (10), статья № 60
4. Search for the doubly charmed baryon  $\Omega_{cc}^+$  (2021)  
Science China: Physics, Mechanics and Astronomy, 64 (10), статья № 101062
5. Search for time-dependent CP violation in  $D^0 \rightarrow K^+ K^-$  And  $D^0 \rightarrow \pi^+ \pi^-$  decays (2021) Physical Review D, 104 (7), статья № 072010

### Results of intellectual activity

*Three Know-Hows*