

**Перечень тем для написания эссе по направлению «03.04.02 Artificial Intelligence in Materials Science»**

<b>Наименование направления конкурса</b>	<b>Темы эссе</b>
03.04.02 Artificial Intelligence in Materials Science	<p>Modern methods for nanomaterials diagnostics (choose several methods and explain why they are promising and should be applied for nanomaterials diagnostics in modern materials science). Prepare a short review of the methods of materials diagnostics that you find interesting for you. How AI helps scientists analyze big data?</p> <p>Self-driving laboratories – as a tool for chemistry of XXI century. What are the main concepts and components of self-driving laboratories? Will artificial intelligence left scientists that are working in materials science without job or it is vice versa open new horizons? Can self-driving laboratories provide new unexpected discoveries in the field of modern chemistry and materials science?</p> <p>How do computational simulations of materials properties and processes allow experimentalists to empower their opportunities in the search of the new materials? What is the concept of ML-based interatomic potential and why it is important to make computational materials design for real scale objects?</p> <p>Artificial intelligence as a tool to create new materials with enhanced properties (Provide a short review on the topic. Explain your own view on the advantages of the use of AI in material science. Try to think about possible disadvantages.)</p>