



Institute of Silicate Chemistry of Russian Academy of Sciences

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To Whom It May Concern:

My name is Dr. Maxim Arsentev and I am interested in the Research Assistant/Associate position at University of Cambridge. I have extensive experience in computational materials science and I feel that my professional and educational background will satisfy the requirements of this position. Currently, I am a Senior Researcher in the Laboratory of Research of Nanostructures at Institute of Silicate Chemistry. We are studying electrochemical properties of new perspective cathode materials for super-valent lithium batteries. In this work, we collaborate with Dr. Mahmoud Hammouri in the Chemistry and Biochemistry Department of the California Polytechnic State University, USA, Dr. Alexander Missyul at CELLS ALBA, Spain. Our joint research was studying electrochemical properties of Mg in layered intercalation compound from first-principles using TiS_3 as a model system. A very low migration barrier of 0.292–0.698 eV (depending on the Mg content) in the [010] direction was found, which is much lower than the value of analogues, such as layered and spinel TiS_2 . This work was published at the Journal of Physical Chemistry C. I published 52 publications including 1 paper in Acta Crystallographica Section C (Impact factor > 8.6), 1 paper in Journal of Molecular Liquids (IF > 4.7) and International Journal of Hydrogen Energy (IF > 4.1) as the first author. Another our paper on Mg substituted $\text{Li}_2\text{Mn}_{1-x}\text{Mg}_x\text{SiO}_4$ ($x=0.25-0.50$) cathode was published in the Computational Materials Science Journal. Continuing to collaboration with my colleagues we prepare a new paper on electrochemical properties of Ti_2S_3 Mg cathode, a manuscript is preparing to be send for publishing. A second collaboration now is with Dr. Andrey Chibisov at Computing Center of the Far Eastern Branch of the Russian Academy of Sciences, Khabarovsk, Russia. The work is devoted to studying electron-phonon coupling and superconductive properties of two-dimensional crystals. In our group, I also advise graduate students in our group with their ongoing research.

I am a conscientious person who works hard and pays attention to detail. I'm flexible, quick to pick up new skills and eager to learn from others. I also have lots of ideas and enthusiasm. I'm keen to work for a research group with a great reputation and high profile like yours. Attached please find my resume and list of references. Thank you for taking the time to consider my application, and I look forward to hearing from you.

Sincerely yours,

Maxim Arsentev, PhD

Senior Researcher

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