

Energy Colloquium

High Temperature Superconductors for Real World: From the Amazing Phenomenon to Materials and Applications

Dr. Alexander Molodyk

**Chief Technology Officer at SuperOx and
S-Innovations**

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Skolkovo Innovation Center

**Technopark, Building 3, Room 403 (Note new room in
term 4)**



ABSTRACT:

Superconductivity is an amazing physical phenomenon discovered a century ago. Superconductors transmit electricity without resistance and loss. This enables many new applications. Until the 1990's, however, there had been no significant commercial market opportunity for superconductors, since they had to be cooled down with expensive liquid helium (4 Kelvin). Therefore, the so-called low temperature superconductors (LTS) were applied in relatively large volumes only in high field magnets for high energy physics. The situation changed revolutionarily with the discovery of high temperature superconductors (HTS) in 1987, which could work at liquid nitrogen temperature (77 Kelvin), and, especially, with the demonstration of useful long-length high current conductors made of HTS in the early 1990's. Among the applications of HTS are high power transmission cables, unique fault current limiters, high field electromagnets, motors and generators, and many others. SuperOx develops, manufactures and markets second-generation (2G) HTS wire, as well as devices made with 2G HTS wire. This talk will review the market and manufacturing technologies of HTS materials and their applications in the world and in Russia. In particular, activities at SuperOx will be highlighted.

Non-Skoltech attendees should request access to the building in advance by sending their passport details to energy.colloquium@skoltech.ru

Colloquium schedule and information on how to get to the colloquium can be found at <http://www.skoltech.ru/en/energy-colloquium/>