SHS 2019

**THE XV INTERNATIONAL SYMPOSIUM ON SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS**

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY MISIS

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http://www.ism.ac.ru/events/SHS2019/index.html

## "MATERIALS SCIENCE AND ENGINEERING VS. MEGA SCIENCE PROJECTS"

**The plenary session, September 17, 2019**

Nearly all modern industries benefit from developments in materials research. To be leaders in industrial growth and to maintain a vibrant economy, it is critical to be successful in materials science and engineering innovations. Scientists and engineers in many disciplines, including solid-state physics and elementary particles physics, chemistry, electronics, biology, and mechanics provide many ideas and motivation for materials science and engineering research.

The important component of support for basic research in materials science is the state-of-the-art research infrastructure, in particular, so called **MEGA SCIENCE facilities**. Modern materials science makes intense use of MEGA SCIENCE facilities: neutron reactors, synchrotron sources, free electron lasers, where sources, optics and detectors allow for a wide range of possible experiments putting forwards the limits of the analysis of the structure and dynamics of matter and materials.

**MEGA SCIENCE facilities** contribute to breakthrough research in the field of materials science; serve as an intellectual focus that attract scientists from around the world. Projects, implemented on these facilities are one of the most efficient tools to facilitate international cooperation in science, technology and education.

On the other hand, design, construction, operation and upgrade of **MEGA SCIENCE facilities** create demands for new materials, innovative equipment and components, manufacturing tools. Materials scientists and engineers can be at the forefront of MEGA SCIENCE facilities development.

**"MATERIALS SCIENCE AND ENGINEERING VS. MEGA SCIENCE PROJECTS"** plenary session in the frame of SHS-2019 aims to provide an attractive and welcoming platform for representatives of Materials Science Community and MEGA SCIENCE facilities to share experience and exchange views on prospects of coherent and effective interaction.

**The session will focus on two complementary dimensions:**

i) Benefits of Mega science facilities for materials research and engineering,

ii) Role of materials science and engineering in construction and upgrade of Mega science facilities.

The plenary session has been initiated and organised by **the Russian National Contact Point** for Research Infrastructures under EU Horizon 2020.

## DRAFT AGENDA

**Moderator:** **Marine Melkonyan,** NCP for Research Infrastructures in Russia

**Keynote speech**

CREMLIN and CREMLINplus projects
**Martin Sandhop, DESY**

**Speakers:**

I. CERN Mega science facilities and Materials science issues
**Igor Golutvin,** CERN & **Vladimir Shevchenko**, NRC KI and NUST MISIS

II. NICA, Mega science facility
**Vladimir Kekelidze,** the Joint Institute for Nuclear Research (Dubna, TBC)

**III.** SSRS-4, Mega science facility
**Vladimir Kravchuk**, NRC KI

**IV.** Educational Programmes in Materials science exploring large scale facilities **(PIK** Mega science facility)
**Sergey Grigoriev,** Professor of Saint-Petersburg State University**,** NRC «Kurchatov Institute» - PNPI (TBC)

**V.** NASEO as a bridge between researchers and Mega science facilities
National Association of Scientific and Educational Organizations (NASEO) - Participants of International Megaprojects (TBC)

**VI**. Transnational and virtual access to research Infrastructures under Horizon 2020
**Marine Melkonyan, Yulia Krasilnikova,** NCP for Research Infrastructures, NUST MISIS