MT25

25th International Conference on Magnet Technology

**RAI - Amsterdam
August 27 - September 1, 2017**

Contribution ID: **72**   Type: **Regular 15 minutes Oral Presentation**

Status of manufacturing and testing of superconducting magnets for NICA and FAIR projects

Tuesday 29 August 2017 16:00 (15 minutes)

NICA is an accelerator collider complex under construction at the Joint Institute for Nuclear Research in Dubna. The facility is aimed at providing collider experiments with heavy ions up to Gold in the center of mass energy from 4 to 11 GeV/u and an average luminosity up to $1\cdot10^{27}$ cm-2 s-1 for Auˆ79+. The collisions of polarized deuterons are also foreseen. The facility includes two injector chains, a new superconducting booster synchrotron, the existing 6 AGeV superconducting synchrotron Nuclotron, and a new superconducting collider consisting of two rings, each 503 m in circumference. The planned FAIR synchrotron SIS100 has to deliver high intensity beams in GSI, Darmstadt. This machine will use fast-cycling 4 T/s, 2 T magnets. The NICA booster synchrotron, the NICA collider and the heavy ion synchrotron SIS100 are based on iron-dominated "window frame"- type magnets with a hollow superconductor winding analogous to the Nuclotron magnet. The status of work on the manufacturing and testing of the NICA magnets and the SIS100 superconducting quadrupole and corrector magnets are discussed.

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Session Classification: Tue-Af-Or16

Track Classification: A1 - Superconducting Accelerator Magnets