## N NBI development status in Kurchatov Institute

V. Kulygin,

Kurchatov Institute, pl. Kurchatova 1, 123182 Moscow, Russia.

Last time Negative Ion Based NBI related activity in Kurchatov Institute included few main branches as follows:

- 1. Experimental confirmation of ITER NBI design decisions
  - High Heat Flux component testing.

Calorimeter mock-up thermo cyclic testing were fulfilled at test stand IREK. Heat elements (swirl tubes of CuCrZr ) were exposed to 10000 pulses at power density 20 MW/m<sup>2</sup> (8600) and 25 MW/m<sup>2</sup> (1400). Pulse duration: 1 s.

• Electrostatic Residual Ion Dump experiment

Experimental investigation of the electrostatic RID concept is now started at test stand IREK. This experiment uses positive ion beam and two panels (one panel is under negative potential) which simulate the RID channel.

- 2. ITER NBI Beam Line Component fabrication technology preparation Technology equipment for bronze tubes fabrication was prepared and pilot batch of the tubes (20 mm in diameter) was produced. Experimental induction bonding of the bronze tubes with stainless steel tubes was fulfilled with use of copper alloy solder. Vacuum testing of the junctions were done before and after mechanical loading.
  - 3. Beam Transmission and Power Deposition calculations
    - For ITER beam duct design modification
    - For SINGAP case of the ITER NBI accelerator
  - 4. PNX-U experiment continuation.

Plasma neutralizer development experiments at PNX-U were continued in the line of detailed investigation of transport mechanism and more precise plasma parameter measurements using new diagnostics.