



Contribution ID: 753

Type: **not specified**

## P2.182 Scope of modification of the TRINITI site fuel cycle complex for the IGNITOR project tasks

*Tuesday, 18 September 2018 11:00 (2 hours)*

Project of IGNITOR tokamak is one of main directions of scientific collaboration between Russia and Italy. Project is entering stage of technical design for location of the machine on TRINITI site in Troitsk, Moscow region.

The IGNITOR machine differs considerably from other machines based on tokamak concept by using a super strong magnetic field (13 Tesla) and plasma current (11 MA). It will operate with short pulses (around 10 sec) and will not have tritium breeding blanket. Requirements to tritium fuel cycle are high because three tritium pulses a day are foreseen with total amount in the range 10 – 15 grams to be processed daily. Fuelling is foreseen to be based on gas injection. Control of plasma current is based on pellet injection. For vacuum conditioning of the plasma chamber by hot helium (at temperature around 510K) use of channels for cooling helium, normally operated at temperature of around 30K, is envisioned. It necessary to provide a full tritium processing cycle including storage and supply of tritium, plasma exhaust purification, separation of hydrogen isotopes, detritiation of gaseous and water streams, tritium recovery from plasma facing components, etc.

Creation of tritium fuel cycle is an important task in modification of the facility already existing in TRINITI. In 2017-2018 Russia carries out evaluation of its capability to support IGNITOR program and modifications needs. The target is development of full scale tritium fuel cycle applicable to support development of a fusion plant.

**Presenter:** ROZENKEVICH, Mikhail (Institute of Modern Energetic and Nanotechnology D.Mendeleyev University of Chemical Technology of Russia)

**Session Classification:** P2