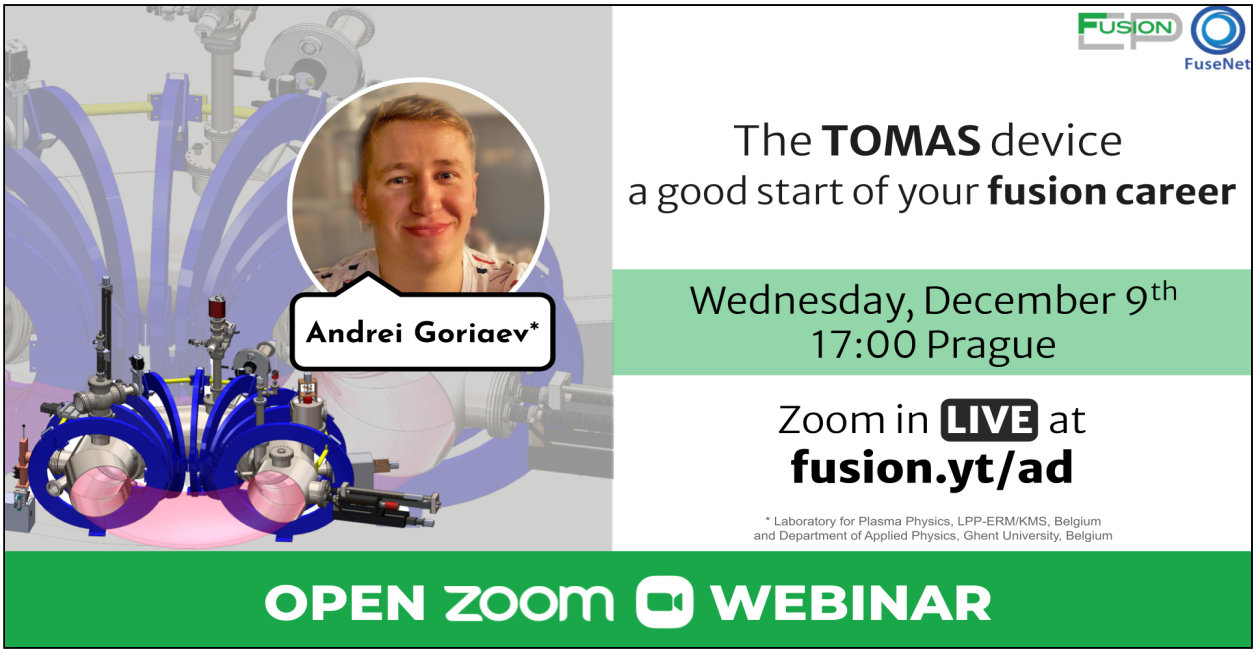
FusionEPTalks



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Title: The TOMAS device a good start of your fusion career

Speaker: Andrei Goriaev

When: 2020-12-09 17:00:00

Abstract: The TOMAS (TOroidal MAgnetized System) device, located in Forschungszentrum Jülich, has been significantly upgraded to enable development of various wall conditioning techniques and to complement plasma-wall interaction research in tokamaks and stellarators. The toroidal magnetic field can reach its maximum of 125 mT on axis. The EC system is operated at 2.45 GHz with up to 6 kW forward power. The IC system can couple up to 6 kW in the frequency range of 10 - 50 MHz. The direct current glow discharge system is based on a graphite anode with the maximum voltage of 1.5 kV and current of 6 A. A load-lock system with a vertical manipulator allows exposure of material samples. A number of diagnostics have been installed: single- and triple-pin Langmuir probes for radial plasma profiles, a Time-of-Flight Neutral Particle Analyzer capable of detecting neutrals in the energy range of 10 - 1000 eV, a Quadrupole Mass Spectrometer and video systems for plasma imaging. Besides the recent upgrades there are a lot of opportunities for further upgrades and improvements to the existing components. The device is suitable for tests of new concepts in plasma production systems and development of specific diagnostics for EC/IC plasma studies in toroidal magnetic field configuration. TOMAS being the "hands-on" machine has become an excellent training ground for students and young researchers to obtain necessary skills and experience in experimental physics.

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