

Abstract Submitted
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The high flux plasma generator Magnum-PSI H.J.N. VAN ECK, A.W. KLEYN, W.R. KOPPERS, J. RAPP, P.A. ZEIJLMANS VAN EMMI-CHOVEN, FOM-Institute of Plasma Physics Rijnhuizen — Magnum-PSI is a magnetized (3 T), high-flux (up to 10^{24} H⁺ ions m⁻²s⁻¹) plasma generator, capable of delivering 10 MW m⁻² steady-state power fluxes to a large area target. Magnum-PSI is a highly accessible laboratory experiment in which the interaction of magnetized plasma with different surfaces can be studied. This experiment will provide new insights in the complex physics and chemistry that will occur in the divertor region of the future experimental fusion reactor ITER and reactors beyond ITER. In this contribution, we will present the design and characterization of the Magnum-PSI experiment. The differentially pumped vacuum system, the superconducting magnet, the plasma source, the target plate and manipulator will be presented. Simulations and measurements of the neutral gas flow, as well as electron density and temperature measurements of the plasma beam will be presented. Furthermore, a flavor of upcoming PSI experiments will be given.

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