

Abstract Submitted
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Fractional pressure measurements in the W7-X startup phase with a spectroscopically assisted Penning gauge¹ THIERRY KREMEYER, OLIVER SCHMITZ, Univ of Wisconsin, Madison, UWE WENZEL, Max Planck Inst. for Plasma Physics, Greifswald, KURT FLESCHE, Univ of Wisconsin, Madison, W7-X TEAM — Studies of helium exhaust from stellarator divertors is important to qualify for maintaining low overall helium concentrations for future reactors. Penning gauges assisted by spectroscopy were used to measure total neutral pressure and to resolve the D and He partial pressures [T. Denner et al. RSI 67 (1996) 3515]. A similar system was installed on an outboard vacuum flange as a generic feasibility test for W7-X. In this contribution, initial results from the W7-X startup phase are shown. A compact CCD spectrometer with a range from 500 to 1000 nm was used to observe the Penning discharge. With a long integration time of 25s, He lines can be seen down to 10⁻⁵ mbar and H lines down to 10⁻⁶ mbar. The impact of He cleaning discharges on the in-situ neutral gas spectrum was measured and will be discussed in comparison to the mass spectrometers on the device. This initial test is the basis for developing optimized Penning gauges, which will be deployed to measure the D/He pressure ratios inside of the island divertor. The status of this development will be discussed.

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Thierry Kremeyer
Univ of Wisconsin, Madison

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