

Abstract Submitted  
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**Filterscope edge plasma diagnostic for the W7-X stellarator**<sup>1</sup> JEFFREY HARRIS, EZEKIAL UNTERBERG, JEREMY LORE, Oak Ridge National Laboratory, LAURIE STEPHEY, OLIVER SCHMITZ, University of Wisconsin-Madison, GLEN WURDEN, Los Alamos National Laboratory, CHRISTOPH BIEDERMANN, MACIEJ KRYCHOWIAK, RALF KOENIG, Max-Planck Institut für Plasmaphysik — W7-X is a large ( $R = 5.5\text{m}$ ,  $a = 0.5\text{m}$ ,  $B < 3\text{T}$ ,  $P > 10\text{ MW}$ ) superconducting stellarator at the Max-Planck Institut für Plasmaphysik in Greifswald, Germany, which will begin plasma operations in the last quarter of 2015. We describe here the first measurements with a 24-channel filterscope diagnostic [E. A. Unterberg, et al, Rev. Sci. Instrum. 83, 10D722, (2012)] of edge plasma characteristics and spectral emission from impurities near the test limiters installed for initial plasma experiments. These measurements, together with high resolution IR thermography imaging of the limiter, will be used as inputs for edge transport modeling using the EMC3 code [J. D. Lore, et al, Nucl. Fusion 52, 0540 (2012)].

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