

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Sorting Category: 6.17 (E)

Studies of Impurities in the Pegasus Spherical Tokamak¹ C. RODRIGUEZ SANCHEZ, G.M. BODNER, M.W. BONGARD, M.G. BURKE, R.J. FONCK, J.M. PERRY, J.A. REUSCH, J.D. WEBERSKI, University of Wisconsin-Madison — Local Helicity Injection (LHI) is used to initiate ST plasmas without a solenoid. Testing predictive models for the evolution of $I_p(t)$ during LHI requires measurement of the plasma resistivity to quantify the dissipation of helicity. To that end, three diagnostic systems are coupled with an impurity transport model to quantify plasma contaminants. These are: visible bremsstrahlung (VB) spectroscopy; bolometry; and VUV spectroscopy. A spectral survey has been performed to identify line-free regions for VB measurements in the visible. Initial VB measurements are obtained with a single sightline through the plasma, and will be expanded to an imaging array to provide spatial resolution. A SPRED multichannel VUV spectrometer is being upgraded to provide high-speed (~ 0.2 ms) spectral surveys for ion species identification, with a high-resolution grating installed for metallic line identification. A 16-channel thinistor bolometer array is planned. Absolutely calibrated VB, bolometer measurements, and qualitative ion species identification from SPRED are used as constraints in an impurity transport code to estimate absolute impurity content. Earlier work using this general approach indicated $Z_{eff} < 3$, before the edge current sources were shielded to reduce plasma-injector interactions.

¹Work supported by US DOE grant DE-FG02-96ER54375.

- Prefer Oral Session
 Prefer Poster Session

Michael Bongard
mbongard@wisc.edu
University of Wisconsin-Madison

Special instructions: Please place as poster 3 in the Pegasus posters.