

Abstract Submitted
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High Current, High Density Arc Plasma as a New Source for WiPAL¹ ROGER WALEFFE, DOUG ENDRIZZI, RACHEL MYERS, JOHN WALLACE, MIKE CLARK, CARY FOREST, Univ of Wisconsin, Madison, WIPAL TEAM — The Wisconsin Plasma Astrophysics Lab (WiPAL) has installed a new array of nineteen plasma sources (plasma guns) on its 3 m diameter, spherical vacuum vessel. Each gun is a cylindrical, molybdenum, washer-stabilized, arc plasma source. During discharge, the guns are maintained at 1.2 kA across 100 V for 10 ms by the gun power supply establishing a high density plasma. Each plasma source is fired independently allowing for adjustable plasma parameters, with densities varying between $10^{18} - 10^{19} \text{ m}^{-3}$ and electron temperatures of 5-15 eV. Measurements were characterized using a 16 tip Langmuir probe. The plasma source will be used as a background plasma for the magnetized coaxial plasma gun (MCPG), the Terrestrial Reconnection Experiment (TRES), and as the plasma source for a magnetic mirror experiment. Temperature, density, and confinement results will be presented.

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