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**Faraday Shield Development on DIII-D**<sup>1</sup> F.W. BAITY, R.H. GOULDING, D.J. HOFFMAN, P.M. RYAN, D.J. TAYLOR, Oak Ridge National Laboratory, R.W. CALLIS, R.I. PINSKER, General Atomics, J.E. LINDEMUTH, J.H. ROSENFELD, Thermaxcore Inc. — DIII-D has been the proving ground for a number of innovative Faraday shield developments over the past ten years. The first Faraday shield used had two tiers of copper-plated Inconel rods of circular cross section with 3 mm thick graphite tiles brazed to the plasma-facing side of the front tier. Later antennas used shields with thin coatings of Ti (C,N) and boron carbide. All the coatings proved effective in reducing impurity influx from the antennas during RF operation. There are two shield designs in use currently. One is a single-tier of horizontal Inconel rods with a 6  $\mu\text{m}$  layer of boron carbide applied by physical vapor deposition. The other design has molybdenum rods with a plasma-sprayed boron carbide coating approximately 100  $\mu\text{m}$  thick. Based on comparative performance the thinner coating obtained with physical vapor deposition is preferred for future applications. All Faraday shields have been passively cooled. Future plans call for tests of vanadium elements and of porous-metal helium-cooled elements.

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