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Divertor extreme ultraviolet (EUV) survey spectroscopy in DIII-D[1] ADAM MCLEAN, STEVE ALLEN, RON ELLIS, AARO JARVINEN, VLAD SOUKHANOVSKII, Lawrence Livermore Natl Lab, REJEAN BOIVIN, EDUARDO GONZALES, IAN HOLMES, JAMES KULCHAR, ANTHONY LEONARD, BOB WILLIAMS, DOUG TAUSSIG, DAN THOMAS, General Atomics, GRANT MARCY, University of California, San Diego — An extreme ultraviolet spectrograph measuring resonant emissions of D and C in the lower divertor has been added to DIII-D to help resolve an ˜2X discrepancy between bolometrically measured radiated power and that predicted by boundary codes for DIII-D, JET and ASDEX-U. With 290 and 450 gr/mm gratings, the DivSPRED spectrometer, an 0.3 m flat-field McPherson model 251, measures ground state transitions for D (the Lyman series) and C (e.g., C IV, 155 nm) which account for >75% of radiated power in the divertor. Combined with Thomson scattering and imaging in the DIII-D divertor, measurements of position, temperature and fractional power emission from plasma components are made and compared to UEDGE/SOLPS-ITER. Mechanical, optical, electrical, vacuum, and shielding aspects of DivSPRED are presented.

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