

## **2D Soft X-Ray System on DIII-D for Imaging the Magnetic Topology in the Pedestal Region**

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A new tangential 2D Soft X-Ray Imaging System (SXRIS) is being designed to examine the edge island structure in the lower X-point region of DIII-D. Shielding and or amplification may play a role the suppression of edge-localized modes via resonant magnetic perturbations (RMPs). The SXRIS will aid in a better understanding of 3D phenomena associated with RMPs. This system relies on a tangential view where a pinhole imaging system with beryllium foils. SXR emission is chosen to avoid line radiation and allow suitable signal at the top of a H-mode pedestal where  $T_e \sim 1-2$  keV. A synthetic diagnostic calculation based on 3D SXRIS emissivity estimates calibrated against NSTX data is used to help assess signal levels and resolution of the design. Interpretation of the line-integrated 2D image with a 3D perturbation will use advanced analysis techniques, such as Bayesian probability theory (BPT). Work supported by the US DOE under DE-AC05-00OR22725 and DE-FC02-04ER54698.