

Abstract Submitted
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ECEI/MIR Optical Designs for KSTAR¹ Z. SHEN, T. LIANG, X. KONG, C.W. DOMIER, N.C. LUHMANN, JR., University of California at Davis, H.K. PARK, Princeton Plasma Physics Laboratory — 2-D plasma imaging diagnostic system is being developed for the KSTAR tokamak to image electron temperature profiles and fluctuations via Electron Cyclotron Emission Imaging (ECEI) and electron density fluctuations via Microwave Imaging Reflectometry (MIR). Optical designs have been developed for both low field (1.5-2.0 T) and high field (3.0-3.5 T) operation scenarios. Each ECEI system consists of a pair of 24 element mixer arrays producing 768 (24×32) channel temperature fluctuation images. Each MIR system consists of a single 16 element mixer array producing 128 (16×8) channel density fluctuation images. Use of in-vessel reflective optics permits both systems to view the KSTAR plasma through a relatively small vacuum window. System details, including preliminary optical and electronics designs for low and high field configurations, will be presented.

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Calvin Domier
University of California at Davis

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