

Abstract Submitted
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Microwave Imaging Reflectometer (MIR) Development for the EAST Tokamak¹ CALVIN DOMIER, XING HU, ALEXANDER SPEAR, UC Davis, YILUN ZHU, JINLIN XIE, University of Science and Technology of China, NEVILLE LUHMANN, UC Davis — An upgraded MIR system is being developed for the EAST tokamak based on the successful DIII-D MIR system. The EAST MIR system has 8 radial channels consisting of 8 independent probing frequencies ranging from 75 to 103 GHz, driven by fast tuning synthesizers and active frequency multipliers. There are 12 poloidal channels in the heterodyne down-conversion receiver system, with each channel corresponding to a separate poloidal position inside the tokamak. The down-conversion electronics are designed to optimize signal to noise ratio and are embedded with a microcontroller to realize remote computer control. Considerable improvements are also seen in the front-end plasma facing optics. This new optical system provides features including focusing, zoom, field curvature adjustment, and incident angle adjustment. These functions can be realized together or independently depending on the configuration setup of the large aperture lenses. This MIR system is expected to be installed on the EAST tokamak in December 2016, co-located with the Electron Cyclotron Emission Imaging (ECEI) system, to simultaneously measure electron density and temperature fluctuations.

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