

Abstract Submitted
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Tearing mode structure study using tangential EUV/SXR diagnostic system on HBT-EP tokamak¹ BOTING LI, J.P. LEVESQUE, G.A. NAVRATIL, M.E. MAUEL, I.G. STEWART, A. SAPERSTEIN, R.N. CHANDRA, Columbia University, C. HANSEN, University of Washington — Measuring and analyzing the intensity of the extreme ultraviolet (EUV) and soft x-ray (SXR) is an effective way to study the internal characteristics of MHD mode structures, including the temperature profiles. We present the progress on the two-color multi-energy EUV/SXR diagnostic system in the HBT-EP tokamak. A filter wheel with five groups of dual-filter structure is adopted to implement multiple combinations of filters, accomplish easier calibration and protect the filters during discharge cleaning. By using a combination of 100 nm Aluminum and 200 nm Titanium filters with identical plasma views and two 16-channel diode arrays, this system allows reconstruction of temperature profile versus time by the ratio of the amplitudes of the signals from different filters, calibrated with Thomson scattering system. The initial results on the dynamics of the $m/n=2/1$ tearing mode are studied using the new system. The line-integrated signals are used to reconstruct the emission and temperature profiles of the tangential cross section of the plasma. The synthetic diagnostics and experimental results are compared to assess the systems ability to identify the island structure.

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