

Abstract Submitted  
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**New instrumentation and analysis for particle transport and fast ion measurements in Alcator C-Mod**<sup>1</sup> WILLIAM ROWAN, I.O. BESPAMY-ATNOV, M.W. BROOKMAN, K.T. LIAO, IFS, The University of Texas at Austin, R.T. MUMGAARD, R.S. GRANETZ, PSFC, MIT — Measurement of ion temperature and rotation in the core of a high density plasma with CXRS is challenging, but experience with the challenges and recent experiments facilitated developments that will lead to progress in particle transport and fast ion transport. Particle measurements require detailed beam profiles and maintenance of calibrations through a campaign. To improve beam profiles, direct measurement of beam width and beam simulation are now supplemented by beam emission measurements that are simultaneous in space and time with the CXRS measurements. Pre campaign radiometric calibrations are maintained by in situ bremsstrahlung measurements. Accurate spatial localization was found to require a detailed analysis of the emission distribution along the intersection of viewchord and beam. Measurement of fast ions generated by minority heating required attenuation of interfering radiation and surprisingly required calibration of polarization sensitivity of optics to assist in removing background.

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