

CXRS on Alcator C-Mod*. E. C. Eisner, William L. Rowan, Huang He, D. M. Patterson, *FRC, The University of Texas at Austin*, J. H. Irby, E. S. Marmor, J. L. Terry, *MIT PSFC*. The optical systems for CXRS in Alcator C-Mod have been developed. They will provide measurements of T_i , v_ϕ , and v_θ . The optical systems are simple and have high throughput. In particular, the toroidal systems must be designed for invessel installation close to the plasma where they are subject to large forces and are inaccessible between vacuum vents. Although the diagnostic neutral beam (DNB) is not yet available, measurements of ion temperature and rotation are being made with ambient and injected impurity species. The rotation measurements, both with ambient impurity emission and subsequently with the DNB, will be compared with the theories of Kim¹ and Hazeltine². Simulations of rotation measurements with the DNB including corrections for charge-exchange effects are presented. An extension of the CXRS system for measurement of ion temperature modulation in transient transport experiments, and perhaps for ion temperature fluctuations, will also be discussed.

1. Y. B. Kim, et al, *Phys. Fluids B*, 3 (1991)
2. R. D. Hazeltine, et al, *Nuclear Fusion* 32 (1992)

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