

Abstract Submitted  
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**Characterization of the New Diagnostic Neutral Beam on Alcator C-Mod**<sup>1</sup> R.V. BRAVENEC, W.L. ROWAN, I. BESPAMYATNOV, Univ. of Texas, Austin, R.S. GRANETZ, D.F. BEALS, R. MCDERMOTT, J. KO, MIT PSFC, S.D. SCOTT, PPPL — A new diagnostic neutral beam (DNB) manufactured by the Budker Institute of Nuclear Physics has been installed on Alcator C-Mod. The beam is capable of 7A extraction current at 50 kV for a continuous duration of 1.5 s, or up to 3.0 s with modulated duty cycle. This is in contrast to the previous DNB which was limited to a 50-ms pulse at  $\sim 5$ A. Characteristics of the beam such as its density in the plasma and cross-sectional profile measured using beam-emission spectroscopy (BES) will be presented, as will component mix, beam divergence, and neutralization fraction measured spectroscopically in the drift duct. In addition, first results from BES measurements of plasma density fluctuations using the new beam will be presented and discussed. Likewise, we present first results from charge-exchange recombination spectroscopy and the expected uncertainties in boron temperature, rotation, and density as functions of beam brightness.

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Ronald Bravenec  
Univ. of Texas, Austin

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