

Abstract Submitted
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Comparison of DBS and CER measurements of the $E \times B$ rotation in the DIII-D Tokamak QUINN PRATT, TERRY RHODES, University of California, Los Angeles, COLIN CHRYSTAL, General Atomics, La Jolla, CA, TROY CARTER, University of California, Los Angeles — Measurements of the $E \times B$ angular velocity, $\omega_{E \times B}$, are made with both Charge Exchange Recombination Spectroscopy (CER) and Doppler Back Scattering (DBS) diagnostics. DBS measures scattered mm-wave radiation from electron density fluctuations¹ while CER measures emission from impurity ions². Radial profiles of $\omega_{E \times B}$ are compared at different phases of a counter-current Neutral Beam Injection pulse. Good agreement is found between DBS and CER, despite measuring different physical processes. The high time resolution of DBS captures dynamics of the poloidal rotation profile as the applied torque varies. Comparing and contrasting $\omega_{E \times B}$ measurements is important due to the key role this value, and its shear, play in turbulence and transport theory. Work supported by USDOE Grants DE-SC0019352, DE-FG02-08ER54984, and DE-FC02-04ER54698.

¹Review of Scientific Instruments 80, 083507 (2009)

²Review of Scientific Instruments 75, 3481 (2004)

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