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Analysis and scenario modeling of LHCD on Alcator C-Mod[1]
J.R. WILSON, C. KESSEL, S. SCOTT, E. VALEO, PPPL, R.R. PARKER, P.T. BONOLI, A.E. HUBBARD, J.W. HUGHES, J.S. KO, O. MENEGHINI, M. PORKOLAB, J.E. RICE, A.E. SCHMIDT, S. SHIRAIWA, G.M. WALLACE, J.C. WRIGHT, MIT PSFC — Lower Hybrid Current Drive (LHCD) on Alcator C-Mod is being used in plasmas with parameters similar to those expected on ITER for the purpose of tailoring the plasma current profile with the ultimate goal of obtaining Advanced Tokamak (AT) operation. New simulation codes have been developed which allow more detailed analysis of the existing data and extrapolation to the final target AT discharges. These codes allow the ability to include the scrape-off plasma, non-Maxwellian electron distribution function and relativistic effects. Scans in the parallel wave-number will be presented and compared to experimental data that have indicated radial broadening of the hard x-ray emission under certain plasma conditions. In addition, scans of the plasma density and temperature will be performed to confirm the optimal approach to achieving AT plasmas.

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