

Abstract Submitted
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Effects of Magnetic Shear on Toroidal Rotation in C-Mod Plasmas with LHCD¹ JOHN RICE, YURI PODPALY, MATT REINKE, BOB MUMGAARD, MIT PSFC, STEVE SCOTT, PPPL, SYUN'ICHI SHIRAIWA, GREG WALLACE, MIT PSFC, PAT DIAMOND, CMTFO, CHI GAO, BOB GRANETZ, JERRY HUGHES, RON PARKER, PAUL BONOLI, MIT PSFC, LUIS DELGADO-APARICIO, PPPL, MARTIN GREENWALD, AMANDA HUBBARD, IAN HUTCHINSON, JIM IRBY, JUNGPYO LEE, EARL MARMAR, STEVE WOLFE, MIT PSFC, ALCATOR C-MOD TEAM, PPPL COLLABORATION, CMTFO COLLABORATION — Application of lower hybrid current drive (LHCD) in Alcator C-Mod plasmas can induce both co- and counter-current directed changes in toroidal rotation, depending on the core q profile. For discharges with $q_0 < 1$, rotation increments in the counter-current direction are observed. If the LH driven current is sufficient to suppress sawteeth and increase q_0 above unity, the core toroidal rotation change is in the co-current direction. This observation unifies the results from several tokamaks. This change in sign of the rotation increment is consistent with a change in sign of the residual stress (the divergence of which constitutes an intrinsic torque that drives the flow) through its dependence on magnetic shear.

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