Abstract Submitted
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Experiments to Understand and Control Energetic Particle Transport by Alfvén Eigenmodes[1] W.W. HEIDBRINK, C. COLLINS, University of California Irvine, D.C. PACE, M.A. VAN ZEELAND, General Atomics, C.T. HOLCOMB, Lawrence Livermore National Laboratory — Alfvén eigenmodes (AE) cause appreciable fast-ion transport in both steady-state scenario and in L-mode current ramp plasmas. All fast-ion diagnostics that are sensitive to a populated portion of phase space observe reductions in signal relative to classical predictions in the presence of many, small-amplitude AEs. Theory indicates that the many wave-particle resonances in these plasmas results in stochastic transport and critical gradient behavior. Initial data from a modulation experiment is consistent with the hypothesis that the fast-ion transport becomes "stiff." Another experiment investigates whether AE-induced transport from the core couples with edge losses induced by test-blanket module fields to enhance localized heating. Application of electron cyclotron heating to control the AEs gives mixed results: AEs are sometimes stabilized but the dependence on the fast-ion and q profiles is complex

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