Abstract Submitted
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ECCD Simulations of ITER Steady State Scenarios[1] M. MURAKAMI, J.M. PARK, D.A. RASMUSSEN, ORNL, R. PRATER, T.C. LUCE, P.B. SNYDER, GA, M. HENDERSON, ITER-IO — The ability of ITER electron cyclotron (EC) launchers to achieve current profile control is analyzed and the implications of existing models in the ITER steady-state regime are examined. EC current drive (CD) deposited at mid radius is needed to form a weak reverse shear profile, supplementing off-axis neutral beam injection. Modification of the equatorial and upper launcher design with steering poloidal angles at larger toroidal angles could drive substantial current at mid to outer radii with good efficiency. Implications of the modified ECCD on ITER steady-state scenarios are examined using an iterative steady-state solution procedure using FASTRAN solver self-consistently with heating and CD, MHD equilibrium, and transport models. The modeling uses a range of theory-based transport models (GLF23, TGLF, CDBM, etc.); edge pedestal/boundary conditions (experimental, EPED); plasma current, and plasma density. The objective of the exercise is to understand the range of steady state solutions that the ITER heating and current drive systems may yield, or conditions under which they may be applied.

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Masanori Murakami
ORNL

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