

Abstract Submitted
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Application of the three ion species ICRF scenario to ITER operations¹ J. WRIGHT, Y. LIN, MIT-PSFC Cambridge, MA, M. PORKOLAB, MIT-PSFC, S. WUKITCH, MIT-PSFC Cambridge, MA, YE.O. KAZAKOV, D. VAN EESTER, J. ONGENA, Laboratory for Plasma Physics, LPP-ERM/KMS, EUROfusion Consortium member, TEC Partner, Brussels, Belgium, E.F. JAEGER, XCEL Engineering Oak Ridge, TN 037830 — Recent ICRF (ion cyclotron range of frequencies) heating experiments on C-Mod and JET confirm that using a third species as a second minority at fractions of less than a percent, eg D-(³He)-H, can increase heating efficiency and generate very energetic ions on the order of an MeV [Y. Kazakov, invited talk this meeting.] Together with 9Be-(4He)-H scenario, three-ion ICRF schemes are applicable to the pre-activation phase of ITER using trace concentrations of 3He or 4He (~ 0.1 of pseudo-alphas. During D-T operations, this scheme may be employed to heat intrinsic beryllium impurities for efficient bulk heating. We will briefly review experimental findings on Alcator C-Mod and JET with validated model comparison. Modeling using full wave solvers and Fokker-Planck will be used to determine heating efficiencies ICRF generated ion tail temperatures for ITER.

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