Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Comparison of the Improved GTNEUT with Monte Carlo for DIII-D Neutrals Experiments

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Georgia Tech — The Transmission-Escape-Probability method [1] has been developed and implemented in the GTNEUT code [2] as an accurate and efficient calculation of 2D neutral particle transport in complex plasma edge geometry. Three extensions of TEP methodology-anisotropic angular fluxes to calculate transmission coefficients [3], intra-region diffusion theory directional refinement of escape probabilities [4], and calculation of the local neutral energy distribution [4]-have been developed which significantly improve the range of validity. Detail comparisons of the improved GTNEUT with Monte Carlo methods for neutral measurements in DIII-D L- and H-mode shots have been made. Agreement of GTNEUT with Monte Carlo and the data has improved significantly.


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Date submitted: 26 Aug 2005

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