**Integrated Codes for ICRF-Edge Plasma Interactions***

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An outstanding problem in the use of ICRF waves is making quantitative predictions of the local (and mainly nonlinear) ICRF antenna-plasma interactions, including rf sheath, ponderomotive and parametric decay effects. These calculations involve problems of self-consistency. For example, predicting antenna loading, local rf fields, and edge interactions require a knowledge of the SOL density profile, but the density profile is strongly influenced by nonlinear rf effects. Even more complex is the calculation of the mutual effects of ICRF waves on edge turbulence and blobs. We are developing a suite of codes for addressing these problems. The rf waves are calculated from the 2D MORRFIC antenna code, as described in a companion paper [1]. An rf sheath boundary condition has been derived which will permit an iterative solution for the self-consistent rf fields, sheath potential and sheath power dissipation. Finally, a 2D SOL turbulence and transport code is being developed which can include the physics of turbulence, blob transport, rf sheath-driven convection, and ponderomotive density depletion. Physics results obtained from these codes and future plans for their integration will be discussed.

[1] M. D. Carter, *et al.*, this conference.

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