Abstract Submitted
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A study of minority-ion gyroresonance crossing using wave packets[1] YANLI XIAO, E.R. TRACY, William & Mary, A.N. KAUFMAN, LBNL and UC Berkeley — We compare the results of ray-based and full-wave methods for the problem of mode conversion in nonuniform plasma. The case studied uses the model developed by Ye and Kaufman [1] to treat a magnetosonic wave crossing a cold minority-ion gyroresonance layer. We launch a wave packet in the magnetosonic channel and follow its evolution, in order to study the effects of its crossing the layer. This allows us to observe the emission of the reflected wave packet after a time delay (the linear 'ion-cyclotron echo'), as well as to directly observe the evolution of the minority-ion current density. From the full-wave output, we compute the energy density as a function of position and time, and compare it to the ray-based predictions. [1] H. Ye and A. N. Kaufman, PhysRevLett 60 (1988) 1642.

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