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Simulation of mode conversion of lower hybrid waves GUOZHANG JIA, NONG XIANG, Institute of Plasma Physics, Chinese Academy of Sciences, XUEYI WANG, YU LIN, Physics Department, 206 Allison Laboratory, Auburn University — Conversion between slow- and fast-waves in the lower hybrid range of frequencies in an inhomogeneous plasma is investigated using the particle-in-cell simulation code based on the gyrokinetic electron and fully kinetic ion (GeFi) model [Yu Lin, Xueyi Wang, Zhihong Lin and Liu Chen, Plasma Phys. Control. Fusion 47, 2005, 657]. For a low input power, it is found that the occurrence of the mode conversion sensitively depends on the value of the parallel wave refractive index as shown by the linear theory, and good agreement with the linear theory is obtained. With the input power increasing, it is shown that the mode conversion process is significantly affected by nonlinear plasma-wave interactions.

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