Stabilization of right-hand polarized beam plasma instabilities due to a large-amplitude left-hand polarized wave: A simulation study

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It has been recently shown that the presence of large amplitude left-hand polarized waves can change the linear properties of ion-beam plasma electromagnetic instabilities [Gomberoff, 2003]. Thus, it was shown that in the presence of large amplitude Alfvén or ion-cyclotron waves, linear beam-plasma right-hand polarized instabilities tend to be stabilized. In particular, when the nonlinear wave amplitude exceeds a threshold value, the linear instability can be completely stabilized. Here, by using computer simulation techniques based upon a one-dimensional hybrid code, we confirm these results.