



Benjamin-Feir-type instability in a saturated ferrite: Transition between focusing and defocusing regimes for polarized electromagnetic waves

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Résumé en anglais	<p>We prove the existence of an oscillatory instability of the Benjamin-Feir type for electromagnetic propagation in a saturated ferrite. We do this by reducing the nonlinear equations governing the propagation of electromagnetic waves in such a medium to the nonlinear Schrödinger equation. We characterize regions where focusing or defocusing of the initial carrier envelope occurs in a function of three physical parameters: the phase velocity, the quotient between the external magnetic field and the magnetization of saturation, and a third one related to the angle between the direction of propagation of the carrier wave and the external magnetic field. We show that there exist points of transition between focusing and defocusing regimes for left elliptically polarized waves. No such point exists for right elliptically polarized waves. We show that all circularly polarized waves propagating parallel to the external magnetic field are stable (unstable) if they have negative (positive) helicity.</p>
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[1] <http://okina.univ-angers.fr/herve.leblond/publications>

[2] [http://okina.univ-angers.fr/publications?f\[author\]=8697](http://okina.univ-angers.fr/publications?f[author]=8697)

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