Limiting absorption principle and mixed variationnal formulation for resonant Maxwell's equations in cold magnetized plasma

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The modeling of electromagnetic waves in cold magnetized plasma leads to resonant equations in time-harmonic domain. This model is similar to the waves equations in metamaterials, and it is known that the solutions may be singular[1]. Nevertheless, because of the a priori continuity of the plasma density, the sign of some crucial coefficient of the resonant dielectric permittivity changes *continuously*, and it behaves as the signed distance to the interface. The singularity have already been characterized by limiting absorption principle for simplified cases[2] and a mixed variational formulation has been provided in previous works[3].

The next step consists in lowering the regularity assumptions and proving the limiting absorption principle used to define the singularity. Some numerical experiments will be provided to illustrate the problem. Then, extensions are studied.

References

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