

# Resonant Maxwell's equations

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We are interested in constructing stable variational formulations for 2D resonant Maxwell's equations to model plasma heating, including X-mode and possibly mode coupling phenomena. The equations admits multiple singular solutions, so that the usual method is to regularize with a small viscosity term. We combine a limit absorption principle as this viscosity vanishes with an ad-hoc change of variables to get two scalar elliptic degenerate equations coupled across the resonant line. The mathematical properties will be detailed and illustrated with elementary numerical results.