

# The magnetoinductive dimer

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In this paper, we examine a nonlinear magnetoinductive dimer and compute its linear and nonlinear symmetric, antisymmetric and asymmetric modes in closed-form, in the rotating-wave approximation. A linear stability analysis of these modes reveals that the asymmetric mode is always stable, for any allowed value of the coupling parameter and for both, hard and soft nonlinearity. An exact numerical computation of the dimer dynamics reveals a magnetic energy self-trapping whose threshold increases for increasing dimer coupling, decreases for increasing nonlinearity response and is robust against asymmetrical nonlinear responses and resonant frequencies mismatch. © 2013 World Scientific Publishing Company.