The Limits of a Perturbative Approach in Nonlinear Light Curve Analysis

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Using numerical simulations of the full nonlinear flux equation we examine the small-amplitude combination frequency formalism of Wu. We do this both as a forward problem through a direct comparison of simulated light curves and as an inverse problem when attempting to fit a given light curve. We also examine which quantities can robustly be estimated from light curves folded at a given period and which quantities are likely to be unreliable.