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Oscillons and reciprocal oscillons[1] EDGAR KNOBLOCH, JOHN BURKE, University of California at Berkeley, ARIK YOCHELIS, University of California at Los Angeles — Formation of spatially localized oscillations in parametrically driven systems is studied, focusing on the dominant 2:1 resonance tongue. Both damped and self-exciting oscillatory media are considered. The forced complex Ginzburg-Landau equation is used to identify two types of such states, small amplitude oscillons and large amplitude reciprocal oscillons resembling holes in an oscillating background. In addition a variety of front-like states with nonmonotonic profiles is described. A systematic analysis of the origin and stability properties of these states is provided. In many regimes all three states are related to the presence of a Maxwell point between finite amplitude spatially homogeneous phase-locked oscillations and the zero state, leading to a large multiplicity of coexisting stable states of different types.

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