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*Quasi-Gradient Systems, Modulational Dichotomies, and Stability of spatially periodic patterns.*

We discuss relations between the constrained variational problem and stability of solutions of a class of degenerate quasi-gradient systems admitting constraints, including Cahn-Hilliard equations, one- and multi-dimensional viscoelasticity, and coupled conservation law-reaction diffusion systems arising in chemotaxis and related settings. Using the relation between variational stability and the signature of  $\frac{\partial c}{\partial \omega}$ , where  $c$  denote the values of the imposed constraints and  $\omega$  the associated Lagrange multipliers at a given critical point, we obtain as in the Hamiltonian case a general criterion for co-periodic stability of periodic waves, illuminating and extending a number of previous results obtained by direct Evans function techniques. We also prove that co-periodic and sideband stability are incompatible for all of these models. (Received January 27, 2014)