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Jon Wilkening* (wilken@math.berkeley.edu). *Subharmonic stability of standing waves and traveling waves.*

We present new boundary integral and conformal mapping methods for the spatially quasi-periodic Dirichlet-Neumann operator, and use them to investigate the dynamics of standing waves and traveling waves subject to subharmonic perturbation. We combine Floquet theory in time and Bloch theory in space to study the stability of these waves. We also study temporally quasi-periodic perturbations of pure standing waves. Many examples will be given to illustrate the types of behavior that can occur. (Received September 22, 2015)