
ZOI RAPTI, University of Illinois at Urbana–Champaign
Modulational Instability for NLS equations with a periodic potential

This talk is about the stability properties of solutions to the NLS equation with a periodic potential which bifurcate from the Floquet–Bloch eigenstates of the linear problem in the small amplitude limit. We exploit the symmetries of the problem, in particular the fact that the monodromy matrix is a symplectic matrix. We find that the solutions corresponding to the band edges alternate stability, with the first band edge being modulationally unstable in the focusing case, the second band edge being modulationally unstable in the defocusing case, and so on.