Stability of Solutions to a Non-local Gross-Pitaevskii Equation

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Abstract:

The Gross-Pitaevskii equation is a common model in physics, but it only takes local interactions into account. This talk demonstrates the validity of using a nonlocal formulation as a generalization of the local model. A large class of nonlocalities and potentials is studied. We then establish the orbital stability of a class of parameter dependent solutions to the nonlocal problem. Numerical results corroborate the analytical stability results.