

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Vortex Dynamics in Atomic BECs: Some Recent Developments

PANAYOTIS KEVREKIDIS, UMass, Amherst — In the present work, we will briefly discuss a series of recent experiments by a number of groups enabling the examination of a small number of vortices (including ones of different charges) in atomic BECs. We will use a particle method to try to understand the dynamics of these vortices, in the appropriate limits. We will also briefly demonstrate a so-called generating function method that allows to connect the problem of identifying the vortex centers to the theory of classical orthogonal (such as Hermite) polynomials. This formalism will be shown to be quite useful in identifying vortex polygons and other complex vortex patterns. Time permitting, generalizations to 3D settings and vortex rings will be briefly touched upon.

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Date submitted: 14 Nov 2014

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