

## **Fully Discrete Splitting Methods for Rotating Bose-Einstein Condensates**

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We analyze the convergence of a full discretization of the Gross-Pitaevskii equation with rotation term modelling a rotating Bose-Einstein condensate. The spatial discretization is based on a Fourier-Laguerre-Hermite pseudospectral method and time integration is performed by high-order splitting methods. We show the spectral accuracy in space and classical nonstiff order in time under natural regularity assumptions on the exact solution. Numerical experiments illustrate the theoretical results and demonstrate the feasibility of adaptive time stepping based on estimates of the local time-stepping error based on either embedded splitting formulae or a defect correction approach.