ERGOREGION INSTABILITY OF A ROTATING QUANTUM SYSTEM

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Using the analogy between acoustic perturbations in an ideal fluid and the description of a Klein-Gordon scalar field in a curved spacetime, we study the quasinormal modes of a quantum system: the rotating Bose-Einstein condensate. To compute quasinormal frequencies, we use two different numerical techniques, namely the direct integration and the continued-fraction methods. We study in detail the ergoregion instability of this linearly perturbed system, comparing the results with different setup configurations.