



## Physical Sciences Seminar

# Dynamics of Josephson vortices and vortex molecules in coupled Bose-Einstein condensates

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Linearly coupled binary Bose-Einstein condensates (BECs) offer a rich variety of nonlinear excitations. An elementary low-energy building block is the Josephson vortex. We characterise the families of traveling nonlinear excitations connected to the Josephson as yrast excitations and characterise the regimes of stability and positive and negative effective mass. A vortex molecule is an excitation of a two-dimensional binary BEC with linear coupling where vortices in the component condensates are connected by a Josephson vortex, which plays the role of a domain wall of the relative phase. We will discuss the intriguing dynamics of Josephson vortices in the presence of boundary conditions.

**Wednesday, October 25, 2023 11:00am - 12:00pm**

Mondi Seminar Room 2, Central Building



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