



**THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY**

**Department of Mathematics**

**SEMINAR ON PDE**

# **Leapfrogging for Euler equations**

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## **Abstract**

We consider the Euler equations for incompressible fluids in 3-dimension. A classical question that goes back to Helmholtz is to describe the evolution of vorticities with a high concentration around a curve. The work of Da Rios in 1906 states that such a curve must evolve by the so-called "binormal curvature flow". Existence of true solutions whose vorticity is concentrated near a given curve that evolves by this law is a long-standing open question that has only been answered for the special case of a circle travelling with constant speed along its axis, the thin vortex-rings, and of a helical filament, associated to a translating-rotating helix. In this talk I will consider the case of two vortex rings interacting between each other, the so-called leapfrogging. The results are in collaboration with J. Davila (U. of Bath), M. del Pino (U. of Bath) and J. Wei (U. of British Columbia).

**Date: 05 May 2023 (Friday)**

**Time: 4:00pm**

**Zoom Meeting: <https://hkust.zoom.us/j/91735288155> (Passcode: 158116)**

*All are Welcome!*