



Partial Differential Equations Seminar

Title Stability of rotating vortex patches

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Location Zoom 강연

Abstract

Vortex patches are solutions to the two-dimensional inviscid incompressible fluid equations in which the vorticity of the fluid is the characteristic function of a set moving with the fluid. Various shapes of vortex patches are known to rotate in space with a constant angular velocity, the most famous and classical example being the Kirchhoff ellipses (1876). This type of fluid flows are often observed in nature, suggesting their stability. We will review classical works on the stability of rotating discs and ellipses, which are based on a variational principle: they are the unique maximizers of the kinetic energy under appropriate constraints.