

**Name:** Ryo Takada

**Research field:** Differential equations, Functional analysis / Real analysis

**Key words:** Nonlinear Partial Differential Equations, the Navier-Stokes equations, the Euler equations

**Present research:**

The subject of my research is mathematical analysis of nonlinear partial differential equations arising in fluid dynamics. In particular, I have investigated the well-posedness problem of the Euler equations, the Navier-Stokes equations and the Boussinesq equations, and studied the stability and asymptotics of their solutions. My recent research interest is the mathematical analysis of dispersion and anisotropy in geophysical flows. The research topics I have studied are the followings:

- Local well-posedness for the incompressible Euler equations
- Well-posedness, dispersion and anisotropy for the rotating Navier-Stokes equations
- Well-posedness, dispersion and anisotropy for the stably stratified Boussinesq equations

**Notice for the students:**

You are supposed to be familiar with the Lebesgue integration, the Fourier analysis, the functional analysis and the Schwartz distributions. Also, I recommend to read some textbooks and have basic knowledge on harmonic analysis or partial differential equations.