

## 日独共同大学院プログラム Mini-Course

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講義題目： On the motion of a viscous incompressible fluid around a rotating body.

Abstract:

In this lecture we discuss the existence, stability and asymptotic profile at space infinity of a viscous flow around a rigid body in 3D. The case where the body is translating has been intensely studied, while less results have been established when the body is rotating though it is a physically relevant situation. We want to get better understanding of effect due to rotation from qualitative properties of the flow. There are two remarkable aspects. One is a certain hyperbolic feature that is observed in the spectrum of generator, and the other is an important role of the axis of rotation along which the leading term of the flow is largely concentrated.

We address the 2D problem as well. The exterior steady problem in 2D is quite difficult because of the Stokes paradox when the body is at rest. It is made clear that the situation becomes less difficult when the body is rotating, and this is related to the latter aspect mentioned above.