The motion of a rigid-body in a viscous fluid: uniqueness of strong solutions

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January 7, 2026

Abstract - We discuss the uniqueness of regular solutions related to the model of dynamical interaction between a rigid-body and a viscous fluid.

Such model is considered in a frame which is assumed attached to therigid body.

This frame from one side simplify the approach to the existence of solutions, from another side it makes the inconvenient of the rigid motion as coefficient inside the equations.

The problem of the existence of regular solutions was solved in 2002, instead the uniqueness was an open problem until 2025. The result of the uniqueness is obtained in a paper jointly with F. Palma.

P. Maremonti and F. Palma, *The Motion of a Rigid Body in a Viscous Fluid: Results for Strong Solutions, Uniqueness and Integrability Properties*, J. Math. Fluid Mech. (2025).

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