Analysis of the interaction between a viscous incompressible fluid and an elastic structure

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In [1], we consider the system of partial differential equations modeling the dynamics of an elastic structure immersed into a viscous incompressible fluid. The fluid motion is represented by the classical Navier-Stokes equations while the elastic displacement is described by the linearized elasticity equation. The whole system is confined into a general bounded smooth domain of $\mathbb{R}^3$.

We obtain the local in time existence and uniqueness of a strong solution for this fluid-structure interaction system.

Acknowledgments: The authors acknowledge the support of the Agence Nationale de la Recherche, project IFSMACS, ANR-15-CE40-0010.

References

[1] Boulakia, M., Guerrero, S., and Takahashi, T. Well-posedness for the coupling between a viscous incompressible fluid and an elastic structure. *Nonlinearity* (2019).