



# Analysis Seminar

## Qualitative Properties of a Compressible Oseen-structure Interaction PDE Dynamics

By

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**Abstract:** We consider the Oseen structure of the linearization of a compressible FSI system for which the interaction interface is under the effect of the material derivative term. The flow linearization is taken with respect to an arbitrary, variable ambient vector field. This process produces extra “convective derivative” and “material derivative” terms which render the coupled system highly nondissipative. We show first the wellposedness of the said FSI system which provides a continuous bounded semigroup via dissipativity and perturbation arguments. In addition, we analyze the long-time dynamics in the sense of asymptotic (strong) stability in an invariant subspace (one dimensional less) of the entire state space, where the continuous semigroup is uniformly bounded.

**Date:** Friday, June 9, 2023

**Time:** 16:00 – 17:00, GMT+3

**Place:** SA-Z20