

Theme 3: variational

On a variational approach to Euler and Navier-Stokes

Arghir Dani Zarnescu

We consider a construction proposed by A. Acharya in QAM 2023, LXXXI(1) that builds on the notion of weak solutions for incompressible fluids to provide a scheme that generates variationally a certain type of dual solutions. If these dual solutions are regular enough one can use them to recover standard solutions. The scheme provides a generalisation of a construction of Y. Brenier for Euler. We rigorously analyze the scheme, extending the work of Brenier for Euler, and also providing an extension of it to the case of Navier-Stokes equations.

This is joint work with A. Acharya and B. Stroffolini.