

Seminário de sistemas dinâmicos e estocásticos

IMECC - UNICAMP

Título: Euler system describing the motion of compressible fluids.

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Resumo:

We discuss the state of the art of the mathematical theory of the Euler system describing the motion of a compressible inviscid fluid in higher space dimensions, preferably three. Both the full system that captures the energy conservation and its isentropic simplification will be considered. We start by a short discussion of well/ill posedness based on the recent applications of convex integration. We show that the system is essentially ill posed even in the class of entropy/energy dissipative solutions. Next, we discuss the possibility to save well/posedness by selecting a suitable branch of solutions that complies with the principle of maximal dissipation. Finally, we examine the relevance of the Euler system in the description of turbulent fluid flows around an obstacle.