

# Nonuniqueness of solutions to the Euler equations with vorticity in a Lorentz space

Elia Brué  
Institute for Advanced Study (USA)

Maria Colombo  
EPFL Lausanne (Switzerland)

`maria.colombo@epfl.ch`

## Abstract

For the two dimensional Euler equations, a classical result by Yudovich states that solutions are unique in the class of bounded vorticity; it is a celebrated open problem whether this uniqueness result can be extended in other integrability spaces. We prove in this note that such uniqueness theorem fails in the class of vector fields  $u$  with uniformly bounded kinetic energy and vorticity in the Lorentz space  $L^{1,\infty}$ .