Title: "Gaining weight in PDEs is not so bad"

Abstract: During this talk, I will describe different examples in fluid
mechanics on which it is possible to obtain compactness in space on
quantities satisfying transport equations with rough,
 i.e. /non/-/smooth/, velocity fields if the compactness is initially ensured.
We will see that everything goes through gaining weight in a suitable way
i.e. by following the movement while including damping in an appropriate way and
controlling the extent of the whole where things could go wrong.
This is based on a series of works with P.-E. Jabin (Penn State University) with a last
recent work concerning compressible Navier-Stokes with heterogeneous pressure
which was obtained at three with F. Wang
(University of Maryland). The main objective will be to explain the tool through simple
calculations after having recalling a non-local compactness lemma.