

**NON-CONSERVATIVE  $H^{1/2-}$  WEAK SOLUTIONS OF THE  
INCOMPRESSIBLE 3D EULER EQUATIONS**

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We will discuss the motivation and techniques behind a recent construction of non-conservative weak solutions to the 3D incompressible Euler equations on the periodic box. The most important feature of this construction is that for any positive regularity parameter  $\beta < 1/2$ , it produces infinitely many solutions which lie in  $C_t^0 H_x^\beta$ . In particular, these solutions have an  $L^2$ -based regularity index strictly larger than  $1/3$ , thus deviating from the scaling of the Kolmogorov-Obhukov  $5/3$  power spectrum in the inertial range.

This is joint work with Tristan Buckmaster, Nader Masmoudi, and Vlad Vicol.