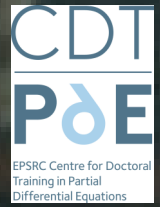


The Twelfth Brooke Benjamin Lecture on Fluid Dynamics

5pm, Monday 21 January 2019

Lecture Theatre 3, Mathematical Institute, University of Oxford

A portrait of Alexander A. Kiselev, a man with glasses, wearing a suit and tie, standing in front of a bookshelf.

# Small Scale and Singularity Formation in Fluid Mechanics

**Alexander A. Kiselev**

**William T. Laprade Professor of Mathematics, Duke University**

The Euler equation describing motion of ideal fluids goes back to 1755. The analysis of the equation is challenging since it is nonlinear and nonlocal. Its solutions are often unstable and spontaneously generate small scales. The fundamental question of global regularity vs finite time singularity formation remains open for the Euler equation in three spatial dimensions.

In this lecture, I will review the history of this question and its connection with the arguably greatest unsolved problem of classical physics, turbulence. Recent results on small scale and singularity formation in two dimensions and for a number of related models will also be presented.

All are warmly invited to attend the lecture and reception that follows.