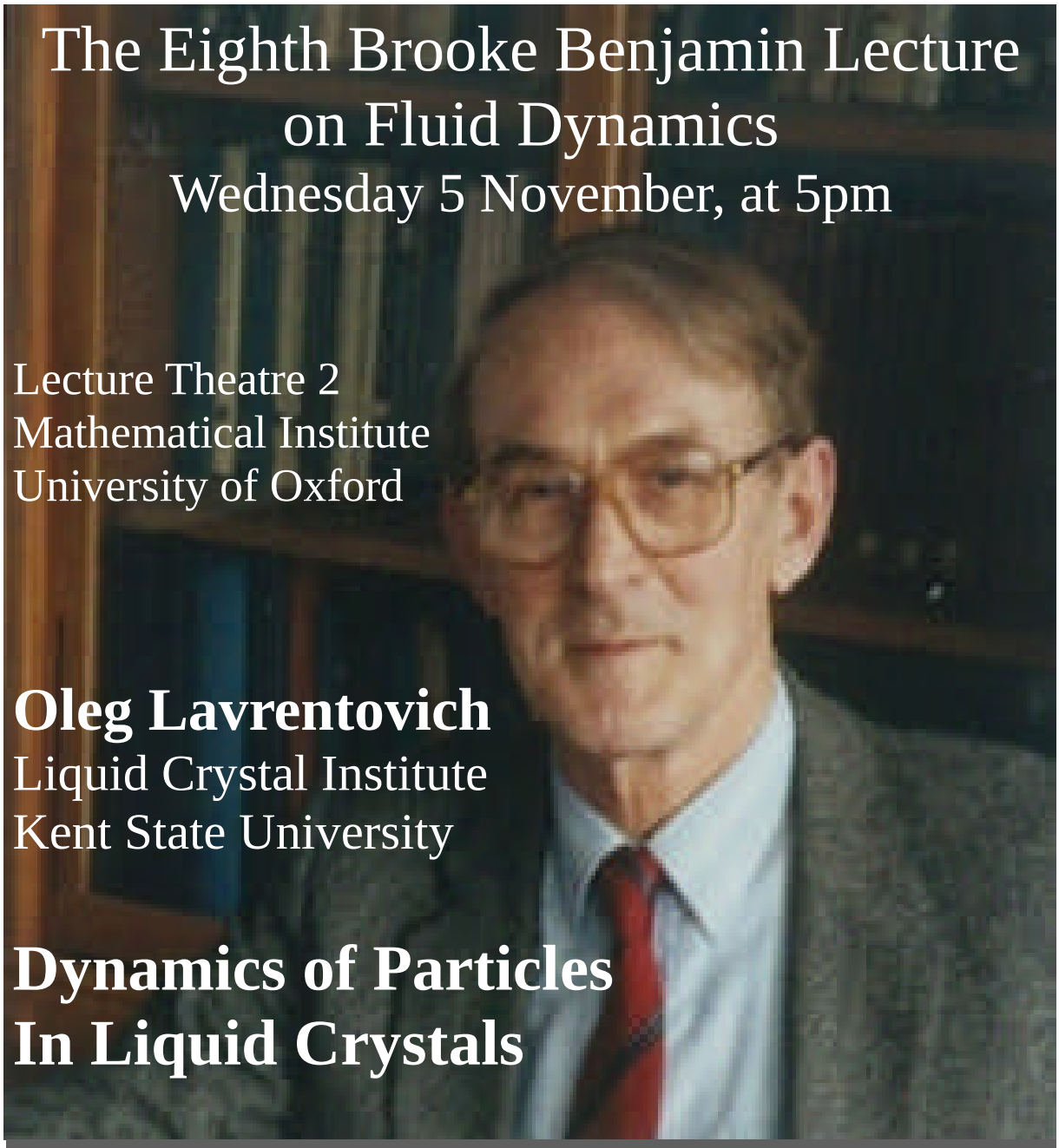
The Eighth Brooke Benjamin Lecture on Fluid Dynamics

Wednesday 5 November, at 5pm

Lecture Theatre 2
Mathematical Institute
University of Oxford



Oleg Lavrentovich
Liquid Crystal Institute
Kent State University

Dynamics of Particles In Liquid Crystals

Dynamics of small particles in fluids have fascinated scientists for centuries. Phenomena such as Brownian motion, sedimentation, and electrophoresis continue to inspire cutting-edge research and innovations. The fluid in which the particles move is typically isotropic, such as water or a polymer solution. Recently, we started to explore what would happen if particles are placed in an anisotropic fluid: a liquid crystal. The study reveals that the liquid crystal changes dramatically both the statics and dynamics, leading to levitation of the particles, their anomalous Brownian motion and new mechanisms of electrokinetics. The new phenomena are rooted in anisotropy of the liquid crystal properties, such as different electric conductivity in the directions parallel and perpendicular to the average molecular orientation.

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