

FLUID MECHANICS TOUR OF THE ALPS

An itinerant seminar series at the heart of Europe



EPFL



Monday **10 October 2022**

**École normale supérieure,
Lyon, France**

Tuesday **11 October 2022**

**Laboratoire des Écoulements
Géophysiques et Industriels
(LEGI), Grenoble, France**

Thursday **13 October 2022**

EPFL Lausanne, Switzerland

Friday **14 October 2022**

ETH Zürich, Switzerland

**Time: 14:15 Location: HG E3
Aéro: CLA Glass Hall**

Ultimate Rayleigh-Bénard and Taylor-Couette turbulence

Rayleigh-Bénard flow - the flow in a box heated from below and cooled from above - and Taylor-Couette flow - the flow between two coaxial co- or counter-rotating cylinders - are the two paradigmatic systems in physics of fluids and many new concepts have been tested with them. While the low Reynolds number regime has been very well explored in the '80s and '90s of the last century, in the fully turbulent regime major research activity only developed in the last two decades. We will first review this recent progress in our understanding of fully developed Rayleigh-Bénard (RB) and Taylor-Couette (TC) turbulence, from the experimental, theoretical, and numerical point of view and discuss transitions between different (turbulent) flow states. We will then focus on the so-called ultimate regime, in which the boundary layer has become turbulent, and which therefore has enhanced transport properties.

Professor Detlef Lohse

Physics of Fluids Group, University of Twente, The Netherlands

Chair of Physics of Fluids group, the University of Twente

Member of (American) National Academy of Engineering

Member of the Dutch Academy of Sciences

Member of the German Academy of Sciences

Detlef Lohse studied physics at the Universities of Kiel and Bonn (Germany), and got his PhD at the University of Marburg (1992). He then joined the University of Chicago as postdoc. After his habilitation (Marburg, 1997), he became Chair at University of Twente (Netherlands) in 1998 and built up the Physics of Fluids group. Since 2015 he is Member of the Max Planck Society and of the Max Planck Institute in Göttingen. Lohse's present research interests include turbulence and multiphase flow and micro- and nanofluidics. He does both fundamental and more applied science and combines experimental, theoretical, and numerical methods.

