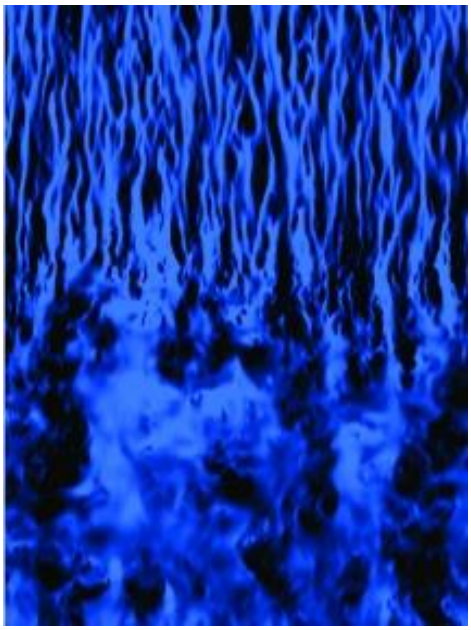
OIST Course

Date: December 21st (Wed) & 22nd (Thu), 2016
Time: 3:00 pm – 5:00 pm
Venue: B700 (Lab 3, Level B)
Speaker: Dr. Emile Touber, Imperial College London

Introduction to Compressible Flows



About the course:

This serie of 6 lectures is a very brief introduction to the rich and fascinating world of compressible-fluid flow, also known as gas-dynamics. At the heart of this lecture serie is the ability of compressible flows to develop discontinuities in the flow field (e.g., shock waves, contact lines).

We shall see that discontinuities emerge from the non-linear hyperbolic property of the governing equations. As such, this peculiarity is indeed far from being unique to gas-dynamics since many dynamical systems around us share a non-linear hyperbolic behaviour (e.g. gravitational waves, traffic/network flows, or even financial markets). A major component of this serie will be to discuss the formation process of a discontinuity in a flow and to predict its properties. Before doing so, we shall introduce the description of matter as a continuum medium, and the implication such description has on the choice of governing equations. Towards the end of the serie, we will briefly discuss what happens when viscosity, conductivity and turbulence are brought back into the picture, therefore providing a glimpse of current research issues.

Schedule:
Lecture 1: Dec 21, 3-5 pm (B700, Lab 3)
Lecture 2: Dec 22, 3-5 pm (B700, Lab 3)
Lecture 3-6: Schedule to be decided

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