Séminaires @ ICARE

A voyage on curved surfaces:

An overview of 3 years of research at ICARE

by

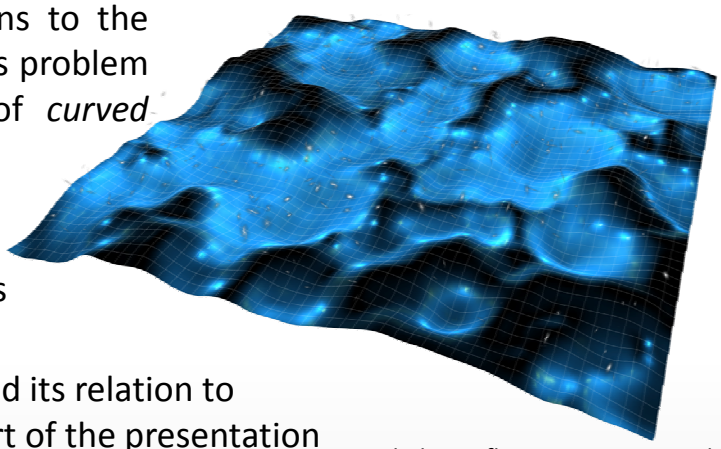
Dr. Fabien Thiesset

Post-doc ICARE CAPRYSSES

Monday, February 20, 2017 at 10h00

Salle de conférence, ICARE

This seminar focuses on our latest contributions to the understanding of turbulent premixed flames. This problem is tackled in the more general perspective of *curved surfaces*, which allows heuristic similarities between turbulent flames and a wide variety of other natural phenomena to be observed. Two distinct aspects of turbulent premixed flames are presented.



Turbulent flames are curved surfaces, as is our spacetime. Image by James Mertens, Kenyon College

First, the (fractal) geometry of wrinkled flames and its relation to the turbulent velocity field are discussed. This part of the presentation attempts to explain the phenomenology of fluid turbulence in the simplest terms and sheds light on the strong analogy between turbulent flames and other types of corrugated surfaces. The second aspect of the presentation relates to the interrelation between flame geometry (stretch and curvature) and flame speeds.

In this prospect, some experimental results providing unprecedented support for recent asymptotic theories are presented. The seminar is aimed at a broad audience and avoids highly technical details. The presentation is given in French, but slides are in English.

Bio : F. Thiesset received his PhD from the University of Rouen in 2011. He was supervised by Professor Luminita Danaila (CORIA, Rouen) and his thesis was devoted to the exploration of some fundamental aspects of fluid turbulence. In 2012, he moved to Australia for a 2-year post-doc in the "Turbulence Research" group of Robert Antonia and Lyazid Djenidi (University of Newcastle, NSW). His research interest was then in the theoretical description of passive scalar turbulent mixing. In August 2014, he joined the group of Fabien Halter, Christian Chauveau and Iskender Gökalp with the aim of unravelling the tenuous interactions between premixed flames and turbulence. More information can be found at: *https://www.researchgate.net/profile/Fabien_Thiesset*

Pour tout renseignement complémentaire, ou proposition de séminaire par un thésard ou un chercheur invité, contacter Sedina Tsikata (sedina.tsikata@cnrs-orleans.fr)