Avec le soutien de la région Midi-Pyrénées
l'Institut de Mécanique des Fluides de Toulouse (IMFT) propose un cours sous la forme
de 8 conférences ouvertes aux doctorants, chercheurs et enseignants-chercheurs

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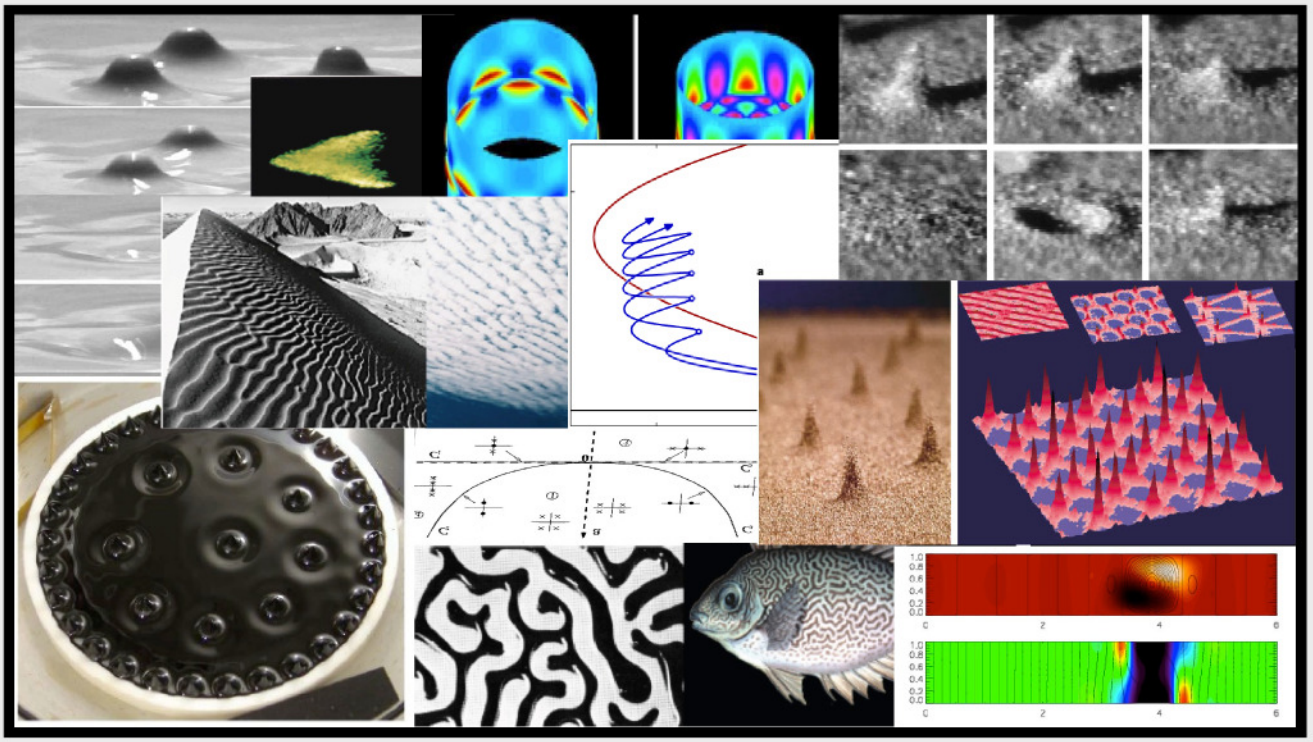
Spatially localized structures

E. Knobloch

Chaire d'excellence Pierre de Fermat de la région Midi-Pyrénées
Department of Physics, University of California, Berkeley

Patterns are abundant in Nature. Some, for example, the stripe pattern on a zebra (or a zebrafish!), arise for biological reasons, perhaps to serve as camouflage. However, essentially identical patterns are found in a variety of different physical and chemical systems. The similarities between these patterns suggest the existence of general principles behind pattern formation that are independent of the detailed physics responsible for their presence. This is so for spatially localized patterns, too.
Spatially localized structures can be stationary or drift, or take the form of localized oscillations known as oscillons. The focus of the lectures will be on the basic theory behind localization, and on applications of the theory in various areas of physics particularly in fluid mechanics, focusing on convection and shear flow. Universal aspects of the behavior will be emphasized throughout. Much of the observed behavior can be understood by studying a simple but remarkable partial differential equation called the Swift-Hohenberg equation. Some familiarity with the equations of fluid mechanics will be assumed; basic notions from dynamical systems and bifurcation theory will be used throughout the lectures. There is no text for the lectures, but a set of 100 pages of notes will be made available.



Inscription gratuite par email adressé à : bergeon@imft.fr
Les cours auront lieu de 10:00 à 11:30 les 4, 6, 11, 13, 18, 20, 25 et 27 février 2014 en salle Castex (RDC), IMFT, 2 Allée du Professeur Camille Soula, Toulouse.
Plan d'accès : http://www.imft.fr