



Institut de Mécanique des Fluides

2 Allée du Pr Camille Soula, Toulouse

Vendredi 20 mai à 10h30 - Amphithéâtre Nougaro

Patterns and quasipatterns from the superposition of two hexagonal lattices

Gérard Looss

Laboratoire J. A. Dieudonné (UMR 7351 - CNRS, Université Côte d'Azur)

Institut Universitaire de France

Ce travail résulte d'une collaboration avec A. M. Rucklidge (Leeds)

We consider the Swift - Hohenberg PDE with quadratic as well as cubic nonlinearities, and look for solutions built with the superposition of two hexagonal lattices rotated by an angle β with respect to each other. We prove existence of several new types of quasipatterns, in particular quasipatterns made from the superposition of hexagons and stripes (rolls) oriented in almost any direction and with any relative translation, and quasipatterns made from the superposition of hexagons with unequal amplitude (provided the coefficient of the quadratic nonlinearity is small). We consider the periodic case as well, and extend the class of known solutions, including the superposition of hexagons and stripes. For the quasiperiodic cases, the proofs follow the process used by the author with B.Braaksma and L.Stolovitch on a simpler problem.

contact : sig_communication@imft.fr

Institut de Mécanique des Fluides - 2, Allée du Pr Camille Soula, 31400 Toulouse.