

An Optimization CMM midday Wednesday, May 3, 2017

14:30-15:00 **Prof. Robert Deville,**
University of Bordeaux, France

Title: Metric spaces into c_0
Abstract. TBA

15:00-15:30 **Prof. Petitjean Colin**
University of Bourgogne Franche-Comté, France

Title: Some aspects of the structure of Lipschitz-free spaces and vector-valued Lipschitz functions.

Abstract: After the seminal paper of Godefroy and Kalton, Lipschitz free spaces have become an object of interest for many authors. Indeed, the fundamental factorization property of Lipschitz-free spaces transforms in a particular way a nonlinear problem into a linear one. This creates links between some old open problems in the geometry of Banach spaces and some open problems about Lipschitz-free spaces. In this presentation we focus mostly on the study of Lipschitz-free spaces which are isometrically isomorphic to dual Banach spaces. We show in particular that they enjoy 11-like properties. We also extend some results to the vector valued case.

15:30-15:45 Coffee break

15:45-16:15 **Prof. Ludovic Rifford**
University of Nice Sophia Antipolis, France

Title: TBA
Abstract. TBA

16:15-16:45 **Prof. Olga Vasilieva**
Universidad del Valle, Cali, Colombia

Title: Optimal Control Theory and Dengue Fever

Abstract. Dengue is a viral disease principally transmitted by *Aedes aegypti* mosquitoes. There is no vaccine to protect against dengue; therefore, dengue morbidity can only be reduced by appropriate vector control measures, such as:

- Suppression of the mosquito population
- Reduction of the disease transmissibility.

This presentation will be focused on implementation of these external control actions using the frameworks of mathematical modeling and control theory approach. In the first part, I will present an endemo-epidemic model derived from registered dengue case in Cali, Colombia and then propose a set of optimal strategies for dengue prevention and control. In the second part, I will present an alternative and unconventional vector control technique based on the use of biological control agent (*Wolbachia*) and formulate a decision-making model for *Wolbachia* transinfection in wild *Aedes aegypti* populations