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SEMINAIRE D'ANALYSE

➤ **VENDREDI 30 MAI 2014 à 15h15 - salle MA A331**

Professeur Camillo De Lellis (Université, Zurich) donnera une conférence sur le thème:

« The regularity theory for area-minimizing currents in codimension higher than 1 »

Abstract: The Plateau's problem is a classic in the calculus of variations and regards minimizing the area among all surfaces spanning a given contour. A successful existence theory, that of integral currents, was developed by De Giorgi in the case of hypersurfaces in the fifties and by Federer and Fleming in the general case in the sixties. When dealing with hypersurfaces, the minimizers found in this way are rather regular and the corresponding regularity theory has been the crowning achievement of several mathematicians in the 60es.

In codimension higher than one, a phenomenon which is absent for hypersurfaces, namely that of branching, causes very serious problems: a famous theorem of Wirtinger and Federer shows that any holomorphic subvariety in \mathbb{C}^n is indeed an area-minimizing current. A celebrated monograph of Almgren solved the issue at the beginning of the 80es, proving that the singular set of a general area-minimizing (integral) current has (real) codimension at least 2. However, his original (typewritten) manuscript was more than 1700 pages long. In a recent series of works with Emanuele Spadaro we have given a substantially shorter and simpler version of Almgren's theory, building upon large portions of his program but also bringing some new ideas from partial differential equations, metric analysis and metric geometry.

Lausanne, le 19 mai 2014
BD/HMN/MM

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<http://memento.epfl.ch/math/>