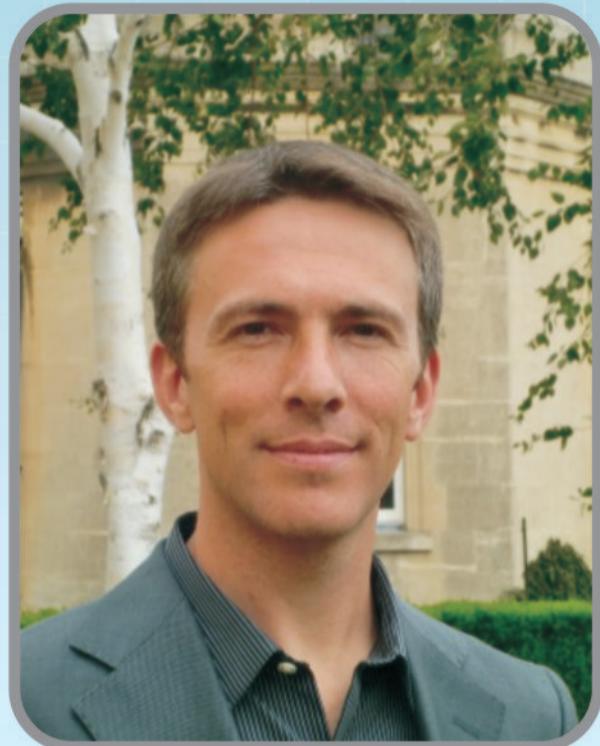


# 交通大學數學建模與科學計算研究中心

## Center of Mathematical Modeling and Scientific Computing, NCTU NCTS/CMMSC Seminar on PDEs, Theory and Applications



**Professor  
Alexis Vasseur**

Associate Chair, Department of Mathematics  
University of Texas at Austin

**Date**

**May 08, 2014**

**Time**

**(1)14:20-15:10 & (2)15:30-16:20**

**Venue**

**SA223(交通大學科學一館223室)**



**Title : The De Giorgi method and its application to parabolic regularity**

### **Abstract**

This lecture is dedicated to the De Giorgi technique first introduced for the study of some elliptic equations. E. De Giorgi first used this technique in 1957 to solve the 19th Hilbert problem. It consists in showing the regularity of variational solutions to nonlinear elliptic problems. To do so, he developed a geometric method to obtain boundedness and regularity of solutions to elliptic equations with discontinuous coefficients. The essence of this method has been successfully applied in several different situations, like homogenization, phase transition, inverse problems, and more recently by the author with some collaborators, in fluid mechanics. We will present the method in its original framework, and show how to adapt it to obtain regularity criteria for parabolic non-linear problems.

**Title: Partial regularity for the Navier-Stokes equation and higher derivatives estimates**

### **Abstract**

In this lecture, we will show how to apply the De Giorgi techniques to show the partial regularity results for the Navier-Stokes equations, first proved by Caffarelli Kohn and Nirenberg. We will provide a quantitative version of the result which provides global estimates for higher derivatives.

敬請公告 歡迎參加

Ps : More events, please see <http://www.cmmsc.nctu.edu.tw>