

De: CRM CRM@CRM.UMontreal.CA

Objet: ** AUJOURD'HUI ** CONFÉRENCES NIRENBERG DU CRM EN ANALYSE GÉOMÉTRIQUE - 24-28 mars 2017 - Camillo De Lellis (Universität Zürich)

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À: activites@crm.umontreal.ca



CONFÉRENCES NIRENBERG DU CRM EN ANALYSE GÉOMÉTRIQUE
CRM NIRENBERG LECTURES IN GEOMETRIC ANALYSIS

"The Onsager's Theorem"

24-28 mars 2017 / March 24-28, 2017

Camillo De Lellis (Universität Zürich)

Centre de recherches mathématiques
Pavillon André-Aisenstadt, Université de Montréal
Salle / Room 6254

Vendredi 24 mars 2017, 16h00 / Friday, March 24, 2017, 4:00 pm

Centre de recherches mathématiques
Pavillon André-Aisenstadt, Université de Montréal
Salle / Room 6254

(Cette conférence s'adresse à un large auditoire. / This lecture is aimed at a general mathematical audience.)

"The Onsager's Theorem I"

In 1949, the famous physicist Lars Onsager made a quite striking statement about solutions of the incompressible Euler equations: if they are Hölder continuous for an exponent larger than $1/3$, then they preserve the kinetic energy, whereas, for exponents smaller than $1/3$, there are solutions which do not preserve the energy. The first part of the statement has been rigorously proved by Constantin, E and Titi in the nineties. In a series of works, László Székelyhidi and myself have introduced ideas from differential geometry and differential inclusions to construct nonconservative solutions and started a program to attack the other portion of the conjecture. After a series of partial results, due to a few authors, Phil Isett has recently fully resolved the problem. In this talk, I will try to describe as many ideas as possible and will therefore touch upon the works of several mathematicians, including László Székelyhidi, Phil Isett, Tristan Buckmaster, Sergio Conti, Sara Daneri and myself.

Le café sera servi à 15h30 et une réception suivra la conférence au salon Maurice L'Abbé, Pavillon André-Aisenstadt (salle 6245).

Coffee will be served at 3:30 pm and a reception will follow the lecture at the Salon Maurice-L'Abbé, Pavillon André-Aisenstadt (room 6245).

Lundi 27 mars 2017, 16h00 / Monday, March 27, 2017, 4:00 pm

Centre de recherches mathématiques
Pavillon André-Aisenstadt, Université de Montréal
Salle / Room 5340

"The Onsager's Theorem II"

In this talk, I will explain Nash's proof of his C^1 isometric embedding theorem, one of the most striking examples of Gromov's ϵ -principle. After illustrating the main ideas of the proof, I will discuss the question of rigidity and flexibility of $C^{1, \alpha}$ isometric embeddings, first pioneered in the fifties by Borisov and rediscovered more recently by Sergio Conti, László Székelyhidi and myself. Finally, I will draw a parallel between a problem of Gromov and the Onsager's conjecture.

Le café sera servi à 15h30 au salon Maurice L'Abbé, Pavillon André-Aisenstadt (salle 6245).

Coffee will be served at 3:30 pm at the Salon Maurice-L'Abbé, Pavillon André-Aisenstadt (room 6245).

Mardi 28 mars 2017, 16h00 / Tuesday, March 28, 2017, 4:00 pm

Centre de recherches mathématiques
Pavillon André-Aisenstadt, Université de Montréal
Salle / Room 5340

"The Onsager's Theorem III"

In this talk, I will describe the main ideas of the first construction of energy-dissipative continuous solutions of the Euler equations, from my 2012 joint work with László Székelyhidi. I will then describe how such construction leads naturally to Hölder regularity and discuss the main obstacle in getting the sharp Hölder exponent.

Le café sera servi à 15h30 au salon Maurice L'Abbé, Pavillon André-Aisenstadt (salle 6245).

Coffee will be served at 3:30 pm at the Salon Maurice-L'Abbé, Pavillon André-Aisenstadt (room 6245).

La série de conférences Nirenberg a été nommée ainsi en l'honneur de Louis Nirenberg, un des plus éminents spécialistes en analyse géométrique de notre temps. Professeur Nirenberg est né en 1925 à Hamilton, Ontario. Après le déménagement de sa famille à Montréal, il a étudié à l'école secondaire Baron Byng, souvent évoquée dans les romans de Mordecai Richler. Louis Nirenberg a obtenu son B.Sc. de l'Université McGill en 1945; en 1949, il reçoit son doctorat de New York University et il deviendra professeur au Courant Institute. Ses contributions fondamentales incluent des travaux précurseurs sur les techniques nonlinéaires PDE en géométrie globale différentielle, les inégalités Gagliardo-Nirenberg en théorie des espaces Sobolev, la théorie Agmon-Douglis-Nirenberg sur les problèmes aux limites elliptiques, l'espace John-Nirenberg de fonctions de la valeur moyenne de l'oscillation et le théorème Newlander-Nirenberg en géométrie complexe. Les réalisations en recherche de Louis Nirenberg ont été soulignées par de nombreux prix et honneurs tels que la National Medal of Science, la Chern Medal, le Crafoord Prize, le Steele Prize et le Jeffery-Williams Prize.

The lecture series is named in honour of Louis Nirenberg who is one of the most prominent geometric analysts of our time. Professor Nirenberg was born in 1925 in Hamilton, Ontario. After his family moved to Montréal, he attended the Baron Byng High School, known to many through the novels of Mordecai Richler. Louis Nirenberg obtained a B.Sc. from McGill University in 1945, and in 1949 received a Ph.D. from New York University, where he later became a professor at the Courant Institute. His fundamental contributions include the pioneer works on nonlinear PDE techniques in global differential geometry, the Gagliardo-Nirenberg inequalities in the theory of Sobolev spaces, the Agmon-Douglis-Nirenberg theory of elliptic boundary value problems, the John-Nirenberg space of functions of bounded mean oscillation and the Newlander-Nirenberg theorem in complex geometry. Research achievements of Louis Nirenberg were recognized by numerous prizes and awards, such as the National Medal of Science, the Chern Medal, the Crafoord Prize, the Steele Prize and the Jeffery-Williams Prize.

Camillo De Lellis est professeur de mathématiques à l'Université de Zürich. Il a reçu son doctorat en 2002 à la Scuola Normale Superiore di Pisa sous la supervision de Luigi Ambrosio. M. De Lellis a apporté une contribution remarquable au calcul des variations, à la théorie de la mesure géométrique, aux dynamiques des fluides et aux systèmes des lois de la conservation. Il a particulièrement obtenu des résultats significatifs conjointement avec László Székelyhidi sur les solutions dissipatives des équations incompressibles de Euler. En reconnaissance de son travail, Camillo De Lellis a reçu de nombreux honneurs tels que la médaille Stampacchia en 2009, une invitation comme conférencier au ICM 2010 de Hyderabad, le prix Fermat en 2013 et le prix Caccioppoli en 2014.

Camillo De Lellis is Professor of Mathematics at University of Zürich. He received his PhD in 2002 at the Scuola Normale Superiore di Pisa under the supervision of Luigi Ambrosio. Professor De Lellis has made remarkable contributions in calculus of variations, geometric measure theory, fluid dynamics and systems of conservation laws. In particular, together with László Székelyhidi, he has obtained significant results on Onsager's conjecture about dissipative solutions to the Euler incompressible equations. In recognition of his work, Camillo De Lellis has received numerous awards such as the 2009 Stampacchia medal, an invitation to speak at the 2010 ICM in Hyderabad, the 2013 Fermat Prize, and the 2014 Caccioppoli Prize.

www.crm.math.ca/Nirenberg2017
