De: crm@crm.umontreal.ca
Objet: COLLOQUE DES SCIENCES MATHÉMATIQUES DU QUÉBEC (05/02/2015, Octav Cornea)
Date: 2 février 2015 10:11
À: activites@CRM.UMontreal.CA

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Un café sera servi à 15h30 / BURN 1024 / Coffee will be served at 3:30 pm / BURN 1024.
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COLLOQUE DES SCIENCES MATHÉMATIQUES DU QUÉBEC (Montréal)
http://www.crm.umontreal.ca/Colloques/colloqueSMQ-Montreal.html
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DATE :
Le jeudi 5 février 2015 / Thursday, February 5, 2015

HEURE / TIME :
16 h / 4:00 p.m.

CONFERENCIER(S) / SPEAKER(S) :
Octav Cornea (Université de Montréal)

TITRE / TITLE :
Cobordism and Lagrangian topology

LIEU / PLACE :
McGill University, Burnside Hall, 805 rue Sherbrooke 0., Montréal, salle 920

RESUME / ABSTRACT :
This talk aims to discuss how two different basic organizing principles in topology come together in the study of Lagrangian submanifolds. The first principle is cobordism and it emerged in topology in the 1950's, mainly starting with the work of Thom. It was introduced in Lagrangian topology by Arnold in the 1970's. The second principle is to reconstruct a subspace of a given space from a family of ``slices'', each one obtained by intersecting the subspace with a member of a preferred class of special ``test'' subspaces. For instance, a subspace of 3d euclidean space can be described as the union of all its intersections with horizontal planes. The key issue from this point of view is, of course, how to assemble all the slices together. The perspective that is central for my talk originates in the work of Gromov and Floer in the 1980's: if the ambient space is a symplectic manifold M, and if the subspace to be described is a Lagrangian submanifold, then, surprisingly,the ``glue'' that puts the slices together in an efficient algebraic fashion is a reflection of the combinatorial properties of J-holomorphic curves in M. This point of view has been pursued actively since then by many researchers such as Hofer, Fukaya, Seidel leading to a structure called the Fukaya category. Through recent work of Paul Biran and myself, cobordism and the Fukaya category turn out to be intimately related and at the end of the talk I intend to give an idea about this relation.