



**De:** CRM [crm@crm.umontreal.ca](mailto:crm@crm.umontreal.ca)  
**Objet:** \*\*\*AUJOURD'HUI\*\*\* / CSMQ : Dorin Bucur  
**Date:** 12 février 2016 09:04  
**À:** [activites@CRM.UMontreal.CA](mailto:activites@CRM.UMontreal.CA)

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COLLOQUE DES SCIENCES MATHÉMATIQUES DU QUÉBEC - Montréal  
<http://www.crm.umontreal.ca/Colloques/index.html>  
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**DATE :**  
Le vendredi 12 février 2016 / Friday, February 12, 2016

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

**CONFERENCIER(S) / SPEAKER(S) :**  
Dorin Bucur (Université de Savoie)

**TITRE / TITLE :**  
Optimal shapes and isoperimetric inequalities for spectral functionals

**LIEU / PLACE :**  
[CRM, UdeM, Pav. André-Aisenstadt, 2920, ch. de la Tour, salle 6214](#)

**RESUME / ABSTRACT :**  
In this talk I will discuss isoperimetric inequalities involving the spectrum of the Laplace operator (of Faber-Krahn, Saint-Venant or Mahler type) seen from the perspective of "shape optimization". Techniques inspired from applied mathematics, like the image segmentation theory, or the use of the computer for numerical approximations, can lead to rigorous mathematical proofs of some of those inequalities. I will describe more in detail problems involving the spectrum of the Robin-Laplacian and a Mahler type inequality for the first Dirichlet eigenvalue, and show how those techniques can be applied.

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