

東北大学大学院情報科学研究科  
純粋・応用数学研究センター

情報数理談話会のお知らせ

日 時： 2015年3月9日 13:30 – 14:30

(会場にお茶を用意しております)

場 所： 東北大学大学院情報科学研究科棟 2階大講義室

講演者： Andrea Colesanti 氏 (Universita di Firenze)

題 目： From the Brunn-Minkowski inequality to elliptic PDE's

[概要] 「第3回幾何と解析セミナー」で行われる連続講義の初めの1時間を、一般向けに情報数理談話会として開催致します。以下はセミナーの概要です。

The main scope of this series of lectures is to describe in details the Brunn-Minkowski inequality, in the realm of Convex Geometry, and its links to the Calculus of Variations and elliptic PDE's. The first part will be dedicated to background material in Convex Geometry. In particular we will introduce the space of convex bodies (compact, convex subsets of the  $n$ -dimensional Euclidean space), along with basic tools like the Minkowski addition, the Hausdorff metric and the support function. We will then pass to the Brunn-Minkowski inequality, presenting its proof through the Prekopa-Leindler inequality, and describing how it is connected with other fundamental inequalities in analysis such the isoperimetric and the Poincare inequality. In the third part we will speak about functionals defined on the class of convex bodies that verify an inequality of Brunn-Minkowski type. This will create the main link with elliptic PDE's. Indeed many classical functionals, like the principal frequency of a domain, the Newtonian capacity and the torsional rigidity, verify an inequality of this type. We will present these examples in some details, explaining some of the techniques used to prove the corresponding Brunn-Minkowski inequality.

ホームページ： <http://www.math.is.tohoku.ac.jp/research/colloquium.html>