

Mini-Workshop with Professor Y.L. Xin

7 Oct. (Wed) 10:00~ Kawai Hall

日時 : 10 月 7 日 (水) 10 時--14 時 50 分

場所 : 川井ホール

(引き続き 15:00 より復旦大学 Y.L. Xin 教授の連続講義があります.)

Program

10:00—10:30 Shin Kikuta (菊田 伸 D1)

Title : On the curvature of the pseudo-volume forms defining measure hyperbolicities

Abstract : The measure hyperbolicities appear when the classical Schwarz' lemma is generalized to the higher dimensional case. The notions are defined by the positivity conditions of some pseudo-volume forms. In the present talk, we will discuss the curvatures of the pseudo-volume forms and some relations between the measure hyperbolicity and the positivity of the canonical bundle.

10:40—11:10 Toshiaki Omori (大森俊明 D2)

Title : A new approach to the existence of harmonic maps

Abstract : In the present talk, I would like to introduce so-called exponentially harmonic maps, which are by definition critical points of a functional having exponential growth. These are known to always exist in a given homotopy class and to have high regularity. I would like to mention that these advantages enable us to re-establish the existence of harmonic maps into non-positively curved manifolds. This new approach also has a prospect for the bubbling analysis of harmonic maps.

11:20—11:50 Mamoru Tanaka (田中 守 D3)

Title : The existence of a global fixed point of an affine isometric action on a strictly convex Banach space

Abstract : A discrete group, every affine isometric action of which on Hilbert spaces has a global fixed point, is said to have Serre's property (FH). Serre's property (FH) is an important concept in wide range of mathematical fields and has many applications. D. Fisher and G. Margulis investigated a similar property in the broader framework of general Banach spaces. In this talk, I will describe a necessary and sufficient condition for which every affine isometric action of a finitely generated group on every strictly convex Banach space in a family has a global fixed point.

13:30—14:00 Asuka Takatsu (高津飛鳥 D2)

Title : Wasserstein geometry of non-linear Fokker-Planck equations

Abstract : Inequalities associated with the non-linear Fokker-Planck equations will be discussed. These inequalities describe relations among functionals defined on pairs of probability measures, called generalized relative entropy, Fisher information and Wasserstein distance. In particular the importance of the q -Gaussian measures in these inequalities will be noted in this context.

14:10—14:50 Masayoshi Watanabe (渡辺正芳 RA)

Title : Concentration of measure via Brunn–Minkowski inequalities

Abstract : Let us consider the standard sphere with uniform measure. Then the measure concentrates around the equator as the dimension becomes large. This is a typical example of the concentration-of-measure phenomenon. We concern ourselves with what property on metric and measure leads such a phenomenon. It is known that the positivity of Ricci curvature implies a concentration phenomenon for Riemannian manifolds. In this talk, we extend the fact to the case of metric spaces. Our theorem says that positive curvature versions of the Brunn–Minkowski inequality in the Euclidean space imply a concentration phenomenon. Our inequalities make sense even in discrete spaces.