

10日上午 9:00--9:40 杨晓奎（清华大学）

题目: Some recent progress on RC-positivity

摘要: In this presentation, we will discuss some recent progress on the geometry of compact manifolds with RC-positive tangent bundles, including an affirmative answer to a long-standing open problem of S.T. Yau on rational connectedness of compact Kahler manifolds with positive holomorphic sectional curvature, and new Liouville type theorems for holomorphic maps and harmonic maps. Several open problems related to the theory of RC-positivity will also be discussed.

9:40--10:20 饶胜（武汉大学）

题目: Two transformations of complex structures: deformation and blow-up

摘要: We will introduce our three works on two transformations of complex structures: deformation and blow-up. We prove that the p-Kahler structure with the so-called mild $\partial\bar{\partial}$ -lemma is stable under small differentiable deformation. This solves a problem of Kodaira in his classic and generalizes Kodaira-Spencer's local stability theorem of Kahler structure. Using a differential geometric method, we solve a logarithmic $\bar{\partial}$ -equation on Kahler manifold to revisit Deligne's degeneracy theorem for the logarithmic Hodge to de Rham spectral sequence at E1-level and Katzarkov-Kontsevich-Pantev's unobstructedness of the deformations of a log Calabi-Yau pair. Finally, we will introduce a blow-up formula for Dolbeault cohomologies of compact complex manifolds by introducing relative Dolbeault cohomology.

10:40--11:20 汪志威（北京师范大学）

题目: Characterizations of plurisubharmonic functions and applications

摘要: Plurisubharmonic function appears as weight in Hörmander's L^2 -estimate and Ohsawa-Takegoshi extension theorems. In this talk, we will give new characterizations of plurisubharmonic functions, which show that psh function maybe the only possible choice such that Hörmander's L^2 and Ohsawa-Takegoshi extension hold. Applications will also be given. This is a joint work with Professors Fusheng Deng, Jiafu Ning and Xiangyu Zhou.

11:20--12:00 聂小兰（浙江师范大学）

题目: Then Chern-Ricci flow on non-Kähler surfaces

摘要: The Chern-Ricci flow is an evolution equation of Hermitian metrics by their first Chern-Ricci form. We will discuss the behavior of the flow starting from a Gauduchon metric on non-Kähler surfaces.

10日下午 1:40--2:20 沈洋（南京大学）

题目: Canonical sections of Hodge bundles

摘要: In this talk, we introduce the recent work on the canonical sections of Hodge bundles. First, we review the work of the sections of Hodge bundles for Calabi-Yau manifolds, using the method of deformation theory. Then we generalize it to the Calabi-Yau type case, using the method of Hodge theory. Finally, we introduce the applications of the sections of Hodge bundles for Calabi-Yau type manifolds to characterize the moduli spaces of certain polarized manifolds as ball quotients.

2:20--3:00 赵亮（南京航空航天大学）

题目: Some problems about p-laplace equations on Riemannian manifolds

摘要: In this talk, I will consider some p-Laplacian type of nonlinear equations on Riemannian manifolds. We derive some gradient estimates and Liouville theorems for positive solutions to these equations. At last, we will give an affirmative answer to Kotschwar and Ni's conjecture on p-harmonic function under a weaker integral curvature condition on manifolds.

3:00--3:40 朱盛茂（浙江外国语学院）

题目: Integrality structures in topological strings

摘要: In this talk, we will briefly review the mathematical structures of topological string theory on quintic 3-fold. Then we present our recent results on integrality properties of open string BPS invariants. We compute the open string BPS invariants by the method of string dualities. The integrality properties are proved by the method of number theory.

4:00--4:40 夏炜（中山大学）

题目: Deformations of Dolbeault cohomology classes

摘要: In this talk, I will report on my recent work on a deformation theory of Dolbeault cohomology classes and its applications to the jumping phenomenon.

4:40--5:20 韦康（上海立信会计金融学院）

题目: Locally extensions of d_H -closed real forms of pure type on compact generalized Hermitian manifolds

摘要: This paper extends some results of deformation theory of complex structures by Liu Kefeng, Rao Sheng, Yang Xiaokui, Zhao Quanting, etc to the case of generalized complex structures. In details, we give a local extension of d_H -closed real forms of pure type on deformations of compact generalized Hermitian manifolds with generalized $\overline{\partial}_H$ -lemma holds.

11 日上午 9:00--9:40 张莹莹（清华大学）

题目: Obstructions to the existence of coupled Kähler-Einstein metrics

摘要: Coupled Kähler-Einstein metric was introduced by Hultgren and Witt-Nystrom. It is a new type canonical metric generalizing Kähler-Einstein metrics or Kähler Ricci solitons on a compact Kähler manifolds. In this talk, we will discuss two obstructions to the existence of the coupled Kähler-Einstein metrics. One is the Matsushima type obstruction, which is about the reductivity of the Lie algebra of automorphism. Another is an extension of original Futaki invariant. We will also discuss the localization formula of this generalized Futaki invariant and use it to verify the existence of coupled Kähler-Einstein metric on an example. (This is the joint work with Professor Akito Futaki.)

9:40—10:20 朱萌（华东师范大学）

题目: Li-Yau gradient estimates without Ricci curvature lower bound

摘要: Since the celebrated work of P. Li and S.-T. Yau on the differential estimate for the heat equation on complete manifolds with Ricci curvature bounded below, numerous efforts have been made to improve or generalize the Li-Yau estimate. In this talk, we will present our works on Li-Yau type estimates for the heat equation on complete manifolds with certain integral curvature bounds, namely, $|\text{Ric}^-|$ in L^p for $p > n/2$ or Kato type norm of $|\text{Ric}^-|$ being bounded together with a Gaussian upper bound of the heat kernel. These assumptions allow the lower bound of the Ricci curvature to tend to negative infinity, which is weaker than the assumptions in the known results. We will also introduce a Li-Yau type bound for the heat equation under the compact Ricci flow with uniformly bounded scalar curvature. These are joint works with Qi S. Zhang.

10:40--11:20 陈豪杰（浙江师范大学）

题目: The canonical bundles of nearly Kähler 6-manifolds

摘要: Nearly Kähler manifold is a special class of almost Hermitian manifolds, which is closely related to the study of Einstein metrics, Killing spinors and special holonomy group, etc. We will talk about our recent result on the canonical bundle of nearly Kähler 6-manifolds. In particular, we show that a strictly nearly Kähler 6-manifold has pseudoholomorphically trivial canonical bundle, hence the almost Kodaira dimension is zero. This is joint work with Guanming Wang.

11:20--12:00 汤凯（浙江师范大学）

题目: The Bochner formulas for holomorphic mappings between Hermitian manifolds and their applications

摘要: In this paper, we derive some Bochner formulas for holomorphic maps between Hermitian manifolds. As applications, we prove some Schwarz lemma type estimates, rigidity and degeneracy theorems. For instance, we show that there is no non-constant holomorphic map from a compact Hermitian manifold with positive (resp. non-negative) l -second Ricci curvature to a Hermitian manifold with non-positive (resp. negative) real bisectional curvature. These theorems generalize the results proved recently by L. Ni on Kähler manifolds to Hermitian manifolds. We also derive an integral inequality for holomorphic map between Hermitian manifolds.