会议主题：Moduli of vector bundle and related topics

会议时间：2021/06/13 08:30-20:45 (GMT+08:00)

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2021 年 6 月 13 日 8：30- 9: 30

Title: Poincare lemma for intersection complex

Speaker:申屠钧超 （中国科学技术大学）

Abstract: The classical Hodge theory is a mixsture of the topology, Geometry and analysis of a projective algebraic variety. The algebra-topology part of this theory is now generalized via Saito's theory of mixed Hodge module and have remarkable applications. I will try to explain how to explore the analytical part of this theory. The talk is about the story of the subject. It contains no proofs.

2021 年 6 月 13 日 9：45-10：45

Title：Elliptic curves on the moduli space of stable bundles of rank 3

Speaker：刘敏 （青岛大学）

Abstract ： Let $M:=SU_C(3,L)$ be the moduli space of stable vector bundles of rank 3 a nd with the fixed determinant L of degree 1 over a smooth projective curve C of genus $g \geq 2$. When C is generic, we show that any essential elliptic curve on M has degree (with respect to anti-canonical line bundle $-K_M$) at least 6, and we give a complete classification for essential elliptic curves of degree 6. Moreover, if $g > 12$, we show that any essential elliptic curve passing through the genric point of M has degree at least 18.

2021 年 6 月 13 日 13：00-14：00

Title ： Counterexamples to Fujita's conjecture on surfaces in positive characteristic

Speaker：张永明 （中山大学）

Abstract：We present counterexamples to Fujita’s conjecture in positive characteristic. Moreover, we show that over any algebraically closed field k of characteristic p > 0 and for any positive integer m, there exists a smooth projective surface S with an ample Cartier divisor A such that the adjoint linear system |K_S+mA|is not free of base point. This is a joint work with Gu Y. and Zhang L.

2021 年 6 月 13 日 14：15-15：15

Title: The geometry of moduli of sheaves on surfaces

Speaker：林胤榜 （同济大学）

Abstract: In this talk, we will survey old results and recent developments on the geometry of the moduli space of Gieseker semistable sheaves on surfaces. These include existence, irreducibility, singularities, Betti numbers, and Picard groups of moduli spaces. We will assume that the rank is greater than or equal to 2 and the characteristic is 0.

2021 年 6 月 13 日 15：30-16：30

Title: Semi-invariants and generalized theta functions

Speaker: 文学清 （清华大学）

Abstract: We will talk about some relations between semi-invarints in quiver representation and generalized theta functions on the moduli space of vector bundles on curves.

2021 年 6 月 13 日 18: 30-19：30

Title: Frobenius stratification of moduli spaces of vector bundles in positive characteristic

Speaker： 李灵光 (同济大学)

Abstract: Let X be a smooth projective curve of genus g(X)>1

over an algebraically closed field k of characteristic p>0 and F_X:X->X be the absolute Frobenius morphism. Let M^s_X(r,d) be the moduli space of stable vector bundles of rank r and degree d on X. We study the Frobenius stratification of M^s_X(r,d) in terms of Harder-Narasimhan polygons of Frobenius pull backs of stable vector bundles and get the irreducibility, smoothness and dimension of Frobenius strata in the case (p,g,r)=(3,2,3) with arbitrary d and the case (p,g,r,d)=(2,2,4,0).

2021 年 6 月 13 日 19：45- 20：45

Title: Proper good moduli space of G_m-action

Speaker： 张旭成 (Duisburg-Essen University)

Abstract: Let X be a proper smooth irreducible scheme equipped with a G_m-action. We classify all G_m-invariant open subsets $U \subset X$ such that the corresponding quotient stack $[U/G_m]$ admits a proper good moduli space. Our arguments rely on the recent criterion for the existence of proper good moduli space and purely algebro-geometric.