Titles and Abstracts

SPEAKERS IN CUHK:

Huai-Dong Cao (Lehigh University, USA & University of Macau, Macau)
Title: Martin compactification of a Cartan-Hadamard surface and applications to Ricci solitons

Andriy Haydys (Universität Bielefeld, Germany)
Title: A compactness theorem for the Seiberg-Witten equations with multiple spinors
Abstract: This is a joint project with Th. Walpuski. Motivated by higher dimensional gauge theory, we consider the compactness problem for the Seiberg-Witten equations with multiple spinors in dimension three. We show that a sequence of solutions of the Seiberg-Witten equations has a subsequence converging to a Fueter section, which is a non-linear version of a harmonic spinor.

Wanmin Liu (HKUST, Hong Kong)
Title: Bayer-Macrì decomposition on Bridgeland moduli spaces over surfaces
Abstract: Bayer and Macrì established a determinant line bundle theory on the Bridgeland moduli space over surface, which induced birational geometry of the moduli space via wall-crossing of stability conditions. We find a decomposition of the local Bayer-Macrì map and obtain its image in the Néron–Severi group of the moduli space. The geometric meaning of the decomposition is given. As application, we obtain a precise correspondence between Bridgeland walls and Mori walls. Some toy models on Hilbert scheme of points will be discussed.

Andrei Pajitnov (Université de Nantes, France)
Title: Arnold conjecture, Floer homology, and augmentation ideals of finite groups
Abstract: Let H be a generic time-dependent 1-periodic Hamiltonian on a closed weakly monotone symplectic manifold M. We construct a refined version of the Floer chain complex associated to (M,H), and use it to obtain new lower bounds for the number P(H) of the 1-periodic orbits of the corresponding hamiltonian vector field. We prove in particular that if the fundamental group of M is finite and solvable or simple, then P(H) is not less than the minimal number of generators of the fundamental group. This is joint work with Kaoru Ono.

Sheng Rao (Wuhan University, China)
Title: Several special complex structures and their deformation properties

Takahashi Ryosuke (Harvard University, USA)
Title: The moduli space of S^1-type zero loci for Z/2-harmonic spinors and compactness of PSL(2;C) connections

Weiwei Wu (Université de Montréal, Canada)
Title: Homological mirror symmetry for special isogenous tori
Abstract: We will explain a homological mirror symmetry result of T^{2n} with non-standard symplectic form. By computing their Fukaya categories, we show that their mirrors are certain ablian varieties over the Novikov field. This also shows derived Fukaya category is a complete invariant for this class of symplectic tori, which is the mirror of Orlov's reconstruction theorem for Abelian varieties.

Speakers in Macau:

Conan Leung (CUHK) & **Ziming Ma** (Tsinghua University & Harvard University)
Title: Witten-Morse theory and mirror symmetry. Part I and II

Kwokwai Chan (CUHK) & **Qin Li** (CUHK)
Title: A mathematical foundation of quantum field theory. Part I and II

Zhongtao Wu (CUHK)
Title: Topology in chemistry and biology