9:45–10:45AM SI LI, TSINGHUA UNIVERSITY
Title: “Quantum master equation, chiral algebra, and integrability”

Abstract: Closed string field theory is governed by an L-infinity algebra of interactions, with quantum action satisfying B-V master equation. We will describe a B-twisted version of topological closed string field theory generalizing the Kodaira-Spencer gauge theory. As an example, we explain a complete solution of quantum B-V master equation on elliptic curves in terms of chiral algebras via an evolution of integrable system. This leads to a simple description of the corresponding higher genus mirror symmetry.

10:45-11:15am Break

11:15AM–12:15PM SARA TUKACHINSKY, THE HEBREW UNIVERSITY OF JERUSALEM
Title: “Point-like bounding chains and open WDVV”

Abstract: We show under cohomological assumptions the existence of canonical point-like bounding chains. Canonical bounding chains give rise to open Gromov-Witten invariants. The geometric structure of these invariants is expressed algebraically in a version of the open WDVV equations, which come from certain A_{\infty} relations. These equations give rise to recursive formulae which allow the computation of all invariants for CP^n. In order to formulate the open WDVV, we define a product on relative cohomology that is a lift of the big quantum product on absolute cohomology. This is joint work with Jake Solomon.

12:15-1:45pm Lunch

1:45–2:45PM BOHAN FANG, PEKING UNIVERSITY
Title: "Mirror B-model for toric Calabi-Yau 3-folds”

Abstract: I will discuss, by examples, the mirror curve of a toric Calabi-Yau 3-fold (including orbifolds). I will also explain the family of mirror curves over the toric variety of the secondary fan. This is the B-model in the BKMP (Bouchard-Klemm-Marino-Pasquetti) remodeling conjecture. Such a global B-model is required to apply this conjecture in various situations, e.g. modularity of Gromov-Witten invariants and all genus crepant resolution conjecture. This talk is based on the joints works with Chiu-Chu Melissa Liu and Zhengyu Zong.

2:45-3:00pm Break
3:00–4:00PM HIRO TANAKA, HARVARD UNIVERSITY
Title: "Toward Fukaya categories over arbitrary coefficients"

Abstract: Just like passing from rational invariants to integer invariants detects more information, passing from rings to ring spectra often detects intricate structures and invariants we couldn't see before. Motivated by this, I'll sketch some recent ideas that may help us define Fukaya categories with coefficients in arbitrary ring spectra. There are roughly three flavors of ideas: (1) Kontsevich's cosheaf conjecture, Nadler-Zaslow's microlocal sheaf approach, or Dyckerhoff-Kapranov/Lurie-style colimit constructions, all of which are premised on expressing Fukaya-type information as a (co)sheaf on a skeleton, (2) Understanding moduli of disks as giving rise to sheaves on a universal stack, which is not premised on the same assumptions as (1), and (3) Lagrangian cobordisms. We'll discuss all of these, but will spend most of our time discussing (3).

4:00-4:15pm Break

4:15–5:15PM HANSOL HONG, THE CHINESE UNIVERSITY OF HONG KONG
Title: “Noncommutative mirror functors”

Abstract: For a given immersed Lagrangian $\mathbb{L}$ in a Kahler manifold $X$, I will explain the construction of the noncommutative LG mirror of $X$ arising from formal deformation of $\mathbb{L}$, which reveals mirror symmetry phenomena locally around $\mathbb{L}$. There is a natural A-infinity functor from the Fukaya category of $X$ to the matrix factorization category of this noncommutative LG model. I will apply this to examples of orbifold spheres to see that the resulting mirrors are related to the deformation quantizations of Fano hypersurfaces.

This is a joint work with Cho and Lau.

Saturday, May 7

9:45–10:45AM ERIC ZASLOW, NORTHWESTERN UNIVERSITY
Title: “Lagrangian fillings: what does the sheaf say?”

Abstract: I will review the topological field theory perspective relating Lagrangian fillings of Legendrian knots to augmentations, then the equivalence with sheaves. I will then discuss how this viewpoint informs the theory of cluster varieties defined by bipartite graphs. Finally, I will discuss work in progress on moduli spaces for some Lagrangian three-folds.

This talk is a survey of works with Ng-Rutherford-Shende-Sivek and Shende-Treumann-Williams, as well as work in progress with Treumann.

10:45-11:15am Break

11:15AM–12:15PM ALEX PERRY, HARVARD UNIVERSITY
Title: “Derived categories of Gushel-Mukai varieties”
Abstract: will discuss the derived categories of Fano varieties of Picard number 1, degree 10, and coindex 3. In particular, I will describe an interesting semiorthogonal component of the derived category of such a variety, and discuss its behavior for some birationally special families of fourfolds. This is joint work with Alexander Kuznetsov.

12:15-1:45pm Lunch

**1:45-2:45pm Amanda Francis, Brigham Young University**
Title: "A Landau Ginzburg mirror theorem inspired by Borcea-Voisin symmetry"

Abstract: Landau-Ginzburg models appear in mirror symmetry and have connections to other important mathematical models, including those in Borcea-Voisin mirror symmetry. In this talk I will briefly review the history and construction of the A- and B-models in Landau-Ginzburg mirror symmetry and then discuss a recent Landau-Ginzburg theorem inspired by Borcea-Voisin mirror pairs (joint work with Nathan Priddis and Andrew Schaug).

2:45-3:00pm Break

**3:00-4:00pm Heather Lee, Purdue University**
Title: "Homological mirror symmetry for open Riemann surfaces from pair-of-pants decompositions"

Abstract: We will prove one direction of HMS for punctured Riemann surfaces -- the wrapped Fukaya category of a punctured Riemann surface $H$ is equivalent to the category of singularities of the toric Landau-Ginzburg mirror $(X, W)$, where $W$ is a holomorphic function from $X$ to the complex plane. Given a Riemann surface with a pair-of-pants decomposition, we compute its wrapped Fukaya category in a suitable model by reconstructing it from those of various pairs of pants. The pieces are glued together in the sense that the restrictions of the wrapped Floer complexes from two adjacent pairs of pants to their adjoining cylindrical piece agree. The $A_{\infty}$-structures are given by those in the pairs of pants. The category of singularities of the mirror Landau-Ginzburg model can also be constructed in the same way from a Cech cover by local affine pieces that are mirrors of the pairs of pants.

4:00-4:15pm Break

**4:15-5:15pm Yu-Shen Lin, Stanford University**
Title: “Counting Holomorphic Discs via Tropical Discs on K3 Surfaces”

Abstract: In this talk we will discuss the wall-crossing formula of open Gromov-Witten invariants on K3 surfaces. As a corollary, we will establish a corresponding theorem between the open Gromov-Witten invariants and the weighted count of tropical discs.
**Sunday, May 8**

**9:45–10:45AM Kwokwai Chan, The Chinese University of Hong Kong**

Title: “HMS for local CY manifolds via SYZ”

**Abstract:** In this talk, I will explain how SYZ (Strominger-Yau-Zaslow) mirror constructions can be applied to proving Kontsevich’s homological mirror symmetry (HMS) conjecture in the case of certain local Calabi-Yau manifolds. Some of the results are based on joint works (some in progress) with Daniel Pomerleano and Kazushi Ueda. My work reported in this talk was substantially supported by a grant from the HKSAR RGC (Project No. CUHK400213).

**10:45-11:15am Break**

**11:15AM–12:15PM Natanel Blaier, MIT**

Title: “The quantum Johnson homomorphism, formality and symplectic isotopy”

**Abstract:** Mathematicians often try to study an object by considering its group of automorphisms. Therefore, it only seems natural that given a symplectic manifold $(M, \omega)$, we would like to understand $\pi_0 \text{Symp}(M, \omega)$. To make the problem nontrivial, we focus on those isotopy classes which act trivially on cohomology. When $M = \Sigma_g$ is a surface, the group of such symplectomorphism is well known to low-dimensional topologists: it is the Torelli group, an important but poorly understood subgroup with many interesting connections to other areas of mathematics. In the early 1980's, Dennis Johnson revolutionized the study of this group by introducing a sequence of homomorphisms $\tau_k$ detecting delicate intersection-theoretic information. Now assume $M$ is monotone. In this talk, we associate a 'characteristic class' in Hochschild cohomology to symplectomorphisms $\phi : M \to M$ that is natural with respect to quasi-isomorphism and vanishes when $\phi = \text{id}$. Moreover, the 'values' of this class can evaluated explicitly (at least for low energy). We then show that this quantum Johnson homomorphism can be used to detect exotic symplectomorphism in $\dim > 4$, by analogy with the classical Johnson homomorphism. As application, we construct an $S^1$-family of embedded surfaces $C \subset \mathbb{P}^3$ whose monodromy is a separating Dehn twist. Forming a parametrized blowup of the mapping tori, we obtain a six-dimensional symplectic manifold $X = \text{Bl}_C \mathbb{P}^3$, and a symplectomorphism $\phi : X \to X$. We then use the quantum Johnson homomorphism to show that $\phi$ is an "exotic" symplectomorphism.

**12:15-1:45pm Lunch**

**1:45–2:45PM Jingyu Zhao, Columbia University**

Title: "Periodic symplectic cohomology and the Hodge filtration”

**Abstract:** For an open symplectic manifold, the homological mirror symmetry conjecture states that there is an derived equivalence between the wrapped Fukaya category of the symplectic manifold and the category of matrix factorizations of its mirror Landau-Ginzburg model. It is conjectured in the work of Kontsevich-Katzarkov-Pantev that the periodic cyclic homology of a smooth and proper DG-category admits a non-commutative Hodge
structure. Motivated by this, in this talk we define the periodic cyclic homology of the wrapped Fukaya category. Due to the non-properness of the wrapped Fukaya category, the usual definition of periodic cyclic homology is not well-behaved with respect to localization. To resolve this, we propose another definition, called periodic symplectic cohomology, and define the corresponding Hodge filtration on it.

2:45-3:00pm Break

3:00–4:00pm Michael Viscardi, MIT
Title: "Equivariant quantum cohomology and the geometric Satake equivalence"

Abstract: Recent work on equivariant aspects of mirror symmetry has discovered relations between the equivariant quantum cohomology of symplectic resolutions and Casimir-type connections (among many other objects). We provide a new example of this theory in the setting of the affine Grassmannian, a fundamental space in the geometric Langlands program. More precisely, we identify the equivariant quantum connection of certain symplectic resolutions of slices in the affine Grassmannian of a reductive group $G$ with a trigonometric Knizhnik-Zamolodchikov (KZ)-type connection of the Langlands dual group of $G$. These symplectic resolutions are expected to be symplectic duals of Nakajima quiver varieties, and thus our result can be thought of as a "symplectic dual" to (part of) the work of Maulik and Okounkov on quiver varieties.