Schedule of Talks

Monday, August 4

Time	Speaker	Title & Abstract
10:00 - 11:00	**Mark Gross** (University of California-San Diego)	**Cluster algebras and Mirror Symmetry** I will talk about recent work with Hacking, Keel and Kontsevich applying ideas developed in the context of mirror symmetry for log Calabi-Yau varieties to the theory of cluster algebras. In particular, the techniques introduced allow simple proofs of significant conjectures in cluster algebras, including the positivity of the Laurent phenomenon in the geometric type case (proved by Schiffler and Lee in the skew-symmetric case).
11:15 - 12:15	**TBA**	
12:15 - 14:00	**Lunch**	
14:00 - 15:00	**Hiroshi Ohta** (Nagoya University)	**Generation of Fukaya category and potential function** I will talk about generation criteria for Fukaya category of a closed symplectic manifold and discuss some applications to the case of toric manifolds. This is based on my joint work with M. Abouzaid, K. Fukaya, Y.-G. Oh, K. Ono.
15:00 - 15:30	**Coffee Break**	
15:30 - 16:30	**Kazushi Ueda** (Osaka University)	**Lagrangian torus fibrations on Grassmannians and potential function** We discuss a joint work with Yuichi Nohara on potential functions of Lagrangian torus fibers of completely integrable systems on the Grassmannian of 2-planes in an n-space associated with triangulations of an n-gon. We also discuss the coordinate change between different triangulations, and Floer cohomologies of some of non-torus fibers.
16:45 - 17:45	**Siu-Cheong Lau** (Harvard University)	**Generalized SYZ and homological mirror symmetry** Homological mirror symmetry conjecture asserts an equivalence between the derived Fukaya category and the derived category of coherent sheaves of the mirror. The conjecture has been verified in several interesting cases by computing and comparing generators and relations of the categories. However the computations do not explain why we should expect homological mirror symmetry. We attempt to answer this question by introducing a construction of mirror Landau-Ginzburg model analogous to SYZ, and an A-infinity functor from the Fukaya category to the category of matrix factorizations of the mirror. This is a joint work with Cheol-Hyun Cho and Hansol Hong.

Tuesday, August 5

Time	Speaker	Title & Abstract
10:00 - 11:00	**Ludmil Katzarkov** (Universität Wien)	**Categorical base loci and Multiplier Ideal Sheaves**
11:15 - 12:15	**Tobias Dyckerhoff** (University of Oxford)	**Triangulated surfaces in triangulated categories** We explain how the theory of cyclic 2-Segal spaces can be used to implement a 2-dimensional instance of Kontsevich's proposal on defining a variant of the Fukaya category of a Stein manifold in terms of a singular Lagrangian spine. As a main result, we associate to a marked oriented surface S a differential Z/2-graded category *F(S)* which is acted upon by the mapping class group and can be computed as a categorified state sum with respect to any triangulation of S. We further prove a Mayer-Vietoris theorem which allows for the calculation of motivic A^1-homotopy invariants, such as periodic cyclic homology, of *F(S)*. This talk is based on joint work with Mikhail Kapranov.
12:15 - 14:00	**Lunch**	
14:00 - 15:00	**Changzheng Li** (Kavli IPMU)	**Mirror symmetry for exceptional unimodular singularities** In this talk, we will discuss the LG-LG mirror symmetry conjecture. We will talk about the Saito-Givental theory of weighted homogeneous singularities on the Landau-Ginzburg B-side, and the Fan-Jarvis-Ruan-Witten theory of their mirror partners on the Landau-Ginzburg A-side. On the B-side, we develop a perturbative method to compute the genus-zero correlation functions associated to Saito's primitive forms. It is applied to the exceptional unimodular singularities, and we show that the numerical invariants match the FJRW invariants on the A-side. This establishes the first examples of LG-LG mirror symmetry for weighted homogeneous polynomials of central charge greater than one which contain negative degree deformation parameters. This is my joint work with Si Li, Kyoji Saito and Yefeng Shen.
15:00 - 15:30	**Coffee Break**	
15:30 - 16:30	**Gabriel Kerr** (University of Miami)	**Mirrors to weighted flips and blow-ups** Any toric DM stack has a minimal model sequence consisting of weighted flips, blow-ups and projective bundle projections. It is known that any such sequence introduces a semi-orthogonal decomposition of the derived category of coherent sheaves on the stack. In “Symplectomorphism group relations and degenerations of Landau-Ginzburg models”, a joint work with C. Diemer and L. Katzarkov, a decomposition of the mirror Landau-Ginzburg model was defined. It was conjectured that there is a quasi-equivalence between the A and B model categories that respects these decompositions. In this talk I will discuss this conjecture and sketch a partial proof.

Time	Speaker	Title & Abstract
16:45 - 17:45	**Hiro Lee Tanaka** (Harvard University)	**Lagrangian Cobordisms and Fukaya Categories** Given an exact symplectic manifold with some extra decorations, one can construct two categories whose objects are (exact, decorated) Lagrangians: The Fukaya category, and a category whose morphisms are cobordisms. Both can be triangulated, and there is even a functor between them respecting their triangulated structures. In this talk we discuss some work-in-progress drawing parallels between the two categories, and if time allows, we will discuss the relation of our work with that of Biran-Cornea, or discuss possible applications to the Nearby Lagrangian Conjecture and Heegard-Floer invariants for 2-, 3-, and 4-manifolds.
18:30 -	**Banquet @ Phoenix (POSCO Int'l Center 5F)** Fee: 20,000 KRW in cash *(except for the organizers and speakers)*	

Thursday, August 7

Time	Speaker	Title & Abstract
10:00 - 11:00	**Mohammed Abouzaid** (Columbia University)	**Family Floer cohomology and mirror symmetry** One can associate to a Lagrangian torus fibration on a symplectic manifold X a rigid analytic space Y whose points are the unitary local systems on the fibres. Assuming that there are no singular fibres, I will explain how family Floer cohomology gives rise to a functor which assigns to an unobstructed) Lagrangian in X an object in a (twisted) derived category of Y, and that this functor is faithful.
11:15 - 12:15	**Paul Seidel** (Massachusetts Institute of Technology)	**Categorical localization and the wrapped Fukaya category** I will explain recent work (jointly with Abouzaid) which explains the relation between the Fukaya category of a Lefschetz fibration and the wrapped Fukaya category of its total space.
12:15 - 14:00	**Lunch**	
14:00 - 15:00	**Denis Auroux** (University of California-Berkeley)	**SYZ mirror symmetry and exotic Lagrangian tori** Using CP^2 as our main example and source of evidence, we will explain some conjectural connections between wall-crossing in SYZ mirror symmetry, toric degenerations, and monotone Lagrangian tori. The less conjectural part of the talk is based on Renato Vianna's thesis work (arXiv: 1305.7512).
15:00 - 15:30	**Coffee Break**	
15:30 - 16:30	**TBA**	
16:45 - 17:45	**Kwokwai Chan** (The Chinese University of Hong Kong)	**Witten deformation and scattering diagrams** Given a Calabi-Yau manifold X equipped with a special Lagrangian torus fibration, we introduce a DGLA via Witten deformation, which is expected to govern the quantum deformations of symplectic structures on X. The Maurer-Cartan equation can be solved explicitly, and under the SYZ transform (i.e. Fourier transform) the leading order terms of the solutions reproduce the scattering diagrams which appear in the Gross-Siebert program. This is based on joint work in progress with Conan Leung and Ziming Ma.

Friday, August 8

Time	Speaker	Title & Abstract
09:30 - 10:30	**Christopher Woodward** (Rutgers University)	**Lagrangians associated to minimal model transitions** The Fukaya category is conjectured to be non-empty for compact symplectic manifolds. One way of producing Lagrangians with non-trivial Floer homology is via transitions in the minimal model program (flips and blow-ups). In the toric case, this is essentially a re-interpretation of work of Fukaya-Oh-Ohta-Ono.
10:45 - 11:45	**Cheol-Hyun Cho** (Seoul National University)	**Localized mirror functors from Fukaya category to matrix factorization category** This is a continuation of the talk by Siu-Cheong Lau. We give more detailed explanation of the geometric construction of localized mirror functors: Given an weakly unobstructed Lagrangian torus or a Lagrangian immersion L, we define a localized Floer potential *W(L)*. We discuss a geometric way to define an A-infinity functor from Fukaya category to the matrix factorization category of *W(L)*. This is done by considering L as a reference, and by using Fukaya category operations to define the functor. In particular, we find a way to identify Lagrangian Floer complex directly as a matrix factorization of the function *W(L)*. We discuss its application to homological mirror symmetry of orbifold projective lines, and toric Fano manifolds, This is a joint work with Hansol Hong, and Siu-Cheong Lau.
12:00 - 13:00	**Bernd Siebert** (Universität Hamburg)	**Toward A-model wall crossing in the large complex structure limit**