Week 1

Events for:
Monday, July 1st - Friday, July 5th

Monday, July 1st

8:30am **Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

9:30am **Workshop Mini-course 1: Eleny Ionel - SCGP 102**

Speaker: Eleny Ionel

Title: Moduli spaces of pseudo-holomorphic curves: a glimpse into their structure

Abstract: We begin with an overview of the moduli spaces of pseudo-holomorphic curves, typically used to define enumerative invariants of symplectic manifolds such as the Gromov-Witten invariants. We then focus on structure results for the Gromov-Witten invariants of symplectic 6-dimensional manifolds. We present the introductory background, some of the analytic and topological techniques involved, which will be combined into a proof outline.

10:45am **Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

11:30am **Workshop Mini-course 1: John Pardon - SCGP 102**

Speaker: John Pardon

Title: Derived moduli spaces of pseudo-holomorphic curves

Abstract: We will discuss how to construct moduli spaces of pseudo-holomorphic curves as derived log smooth manifolds using the framework of representable functors.

12:45pm **Workshop: Lunch - SCGP Cafe**

Title: Lunch

3:30pm **Tea Break - SCGP Cafe**

Tuesday, July 2nd

8:30am **Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

9:30am **Workshop Mini-course 1: Chenyang Xu - SCGP 102**

Speaker: Chenyang Xu

Title: K-moduli space of Fano varieties

Abstract: Moduli of varieties is a central topic in algebraic geometry. In the last decade, one of the most exciting stories in algebraic geometry is the observation that K-stability can be used to provide a robust moduli theory of Fano varieties, which are varieties with an ample first Chern class. Its construction uses a wide range of tools, from different subfields of algebraic geometry. In this mini-course, I will explain the notion of K-stability, sketch the construction of the K-moduli space, as well as prove its some fundamental properties.

10:45am **Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

11:30am **Workshop Mini-course 2: Eleny Ionel - SCGP 102**

Speaker: Eleny Ionel

Title: Moduli spaces of pseudo-holomorphic curves: a glimpse into their structure

Abstract: We begin with an overview of the moduli spaces of pseudo-holomorphic curves, typically used to define enumerative invariants of symplectic manifolds such as the Gromov-Witten invariants. We then focus on structure results for the Gromov-Witten invariants of symplectic 6-dimensional manifolds. We present the introductory background, some of the analytic and topological techniques involved, which will be combined into a proof outline.

12:45pm **Workshop: Lunch - SCGP Cafe**

Title: Lunch

12:45pm **Group Photo - SCGP Lobby**

Title: Group Photo

2:30pm **Workshop Forward-Looking Talk: Dusa McDuff - SCGP 102**

Speaker: Dusa McDuff

Title: Cuspidal curves, scattering diagrams and the stabilized ellipsoidal embedding conjecture.

Abstract: This talk will explain how the obstructions to embedding four dimensional ellipsoids symplectically into the complex projective plane can be understood in terms of planar rational unicuspidal curves. These obstructions are stable, in that they persist after multiplying both domain and target by the complex plane, and it is easy to see that they give sharp obstructions to the corresponding stabilized embedding problem. We find necessary and sufficient conditions for such embeddings by interpreting moduli spaces of cuspidal curves in terms of scattering diagrams. This is joint work (in progress) with Kyler Siegel.

3:30pm **Tea Break - SCGP Cafe**

7:00pm **Workshop Banquet - The Waterview at Port Jefferson Country Club**

Title: Banquet Dinner at the Waterview, Port Jefferson, NY

Wednesday, July 3rd

8:30am **Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

9:30am **Workshop Mini-course 2: John Pardon - SCGP 102**

Speaker: John Pardon

Title: Derived moduli spaces of pseudo-holomorphic curves

Abstract: We will discuss how to construct moduli spaces of pseudo-holomorphic curves as derived log smooth manifolds using the framework of representable functors.

10:45am **Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

12:45pm **Workshop: Lunch - SCGP Cafe**

Title: Lunch

2:30pm **Workshop Mini-course 3: Eleny Ionel - SCGP 102**

Speaker: Eleny Ionel

Title: Moduli spaces of pseudo-holomorphic curves: a glimpse into their structure

Abstract: We begin with an overview of the moduli spaces of pseudo-holomorphic curves, typically used to define enumerative invariants of symplectic manifolds such as the Gromov-Witten invariants. We then focus on structure results for the Gromov-Witten invariants of symplectic 6-dimensional manifolds. We present the introductory background, some of the analytic and topological techniques involved, which will be combined into a proof outline.

3:30pm **Tea Break - SCGP Cafe**

Thursday, July 4th

9:00am **July 4th Holiday Center Closed**

Title: July 4th Holiday Center Closed

Friday, July 5th

8:30am **Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

9:30am **Workshop Mini-course 3: John Pardon - SCGP 102**

Speaker: John Pardon

Title: Derived moduli spaces of pseudo-holomorphic curves

Abstract: We will discuss how to construct moduli spaces of pseudo-holomorphic curves as derived log smooth manifolds using the framework of representable functors.

10:45am **Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

11:30am **Workshop Mini-course 3: Chenyang Xu - SCGP 102**

Speaker: Chenyang Xu

Title: K-moduli space of Fano varieties

Abstract: Moduli of varieties is a central topic in algebraic geometry. In the last decade, one of the most exciting stories in algebraic geometry is the observation that K-stability can be used to provide a robust moduli theory of Fano varieties, which are varieties with an ample first Chern class. Its construction uses a wide range of tools, from different subfields of algebraic geometry. In this mini-course, I will explain the notion of K-stability, sketch the construction of the K-moduli space, as well as prove its some fundamental properties.

12:45pm **Workshop: Lunch - SCGP Cafe**

Title: Lunch

2:30pm **Workshop Forward-looking talk: Gavril Farkas - SCGP 102**

Speaker: Gavril Farkas

Title: The geometry of moduli of curves: new approaches via non-abelian Brill-Noether theory and tropical geometry