Titles and abstracts
Thursday

(1) **Pierre Dehornoy**

Broken book and open book decompositions for Reeb vector fields in dimension 3.

An open book decomposition supporting a 3-dimensional flow is a topological tool that reduces the dynamics of the flow to a homeomorphism of a surface. Giroux proved that any contact structure admits a contact form whose Reeb vector field is supported by an open book decomposition. In collaboration with Vincent Colin, Umberto Hryniewicz and Ana Rechtman, we prove that this property is actually generic among contact forms. We will sketch some ideas underlying this work and some consequences. If time permits we will also raise questions concerning the possible topologies of the pages of the open books.

(2) **Eugenio Bellini**

Quantitative tightness for three dimensional contact manifolds: a sub-Riemannian approach.

In this talk I will describe some recent results concerning the relations between contact topology and sub-Riemannian geometry in dimension three. The focus will be on tightness questions, both semi-local and global, and on geometric detection of overtwisted disks. I will introduce the contact Jacobi curve, which is a parametrized curve in the Lagrange Grassmannian, whose dynamics is intertwined with the presence of overtwisted disks. Concerning global results, I will present a K-contac version of Cartan-Hadamard theorem: the universal cover of any negatively curved K-contact manifold is the standard contact structure on $\mathbb{R}^3$. This is a joint work with A. Agrachev, S. Baranzini and L. Rizzi.

(3) **Rafael Ruggiero**

The stability conjecture for geodesic flows of compact manifolds without conjugate points and quasi-convex universal covering.

In a joint work with Rafael Potrie (UDELAR) we show the C^2 stability conjecture from Mañé's viewpoint for geodesic flows of compact manifolds without conjugate points under the assumptions of quasi-convexity and divergence of geodesic rays in the universal covering. This result extends previous works by L. Rifford and R. Ruggiero for 2 and 3 dimensional manifolds without conjugate points. Recently, the conjecture was proved by G. Contreras and M. Mazzucchelli for compact surfaces and no further assumptions, using symplectic topology methods (Birkhoff sections), that do not extend to higher dimensions.

Titles and abstracts
Friday

(1) **Dylan Cant**

Spectral Metrics for Contact Isotopies.

Given a Hamiltonian isotopy of a symplectic manifold, a spectral invariant (or action selector) is a certain distinguished critical value of the Hamiltonian action functional. In a pioneering 1992 paper, Viterbo introduces a spectral metric for a Hamiltonian isotopy as a certain combination of two spectral invariants. Subsequently this metric was reimplemented by Schwarz and Oh for a wide class of symplectic manifolds using the technology of Floer homology. This raises the question of contact geometric analogues. There are some notable contributions to this subject: Givental's 1990s work and Sandon's 2010s work on generating functions and Albers-Merry's 2018 work on spectral invariants via Rabinowitz-Floer homology. In my talk, I will present the construction of one spectral metric for each Reeb flow and each positive loop (on certain contact manifolds amenable to Floer theory), and will discuss the relation to contact displaceability, orderability, and the existence of closed Reeb orbits.

(2) **Amanda Hirschi**

An open-closed Deligne-Mumford field theory.

Invariants based on counts of closed pseudo-holomorphic curves have been widely used in the study of closed symplectic manifolds. In contrast, the theory of counts of pseudo-holomorphic curves with Lagrangian boundary conditions is much less studied beyond the case of disks and strips due to two difficulties: orientability issues and the existence of boundary strata. I will explain these problems and describe recent work with Kai Hugtenburg on how these curves can be used to define chain-level operations (yielding the object of the title) that recover the closed Gromov-Witten invariants of the symplectic manifold as well as the open Gromov-Witten invariants of the Lagrangian in genus zero.

(3) **Noah Porcelli**

Homotopy non-invariance of the Goresky-Hingston coproduct.

String topology is the study of algebraic operations on free loop spaces of manifolds, and arises naturally in the study of Floer theory on cotangent bundles. This includes the structure of both a product and a coproduct. In contrast to the product, Naef showed that the coproduct is surprisingly not a homotopy invariant of a manifold: string topology "sees" more than just the homotopy type. We classify the failure for the coproduct to be a homotopy invariant, in terms of an invariant coming from K-theory of spaces. Similar answers have also been obtained by Naef-Safronov and Wahl, in terms of slightly different invariants. Based on joint work with Lea Kenigsberg.

(4) **Yuan Yao**

Anchored symplectic embeddings.

Given two four-dimensional symplectic manifolds, together with knots in their boundaries, we define an "anchored symplectic embedding" to be a symplectic embedding, together with a two-dimensional symplectic cobordism between the knots (in the four-dimensional cobordism determined by the embedding). We use techniques from embedded contact homology to determine quantitative critera for when anchored symplectic embeddings exist, for many examples of toric domains. In particular we find examples where ordinarily symplectic embeddings exist, but they cannot be upgraded to anchored symplectic embeddings unless one enlarges the target domain. This is joint work with Michael Hutchings, Agniva Roy and Morgan Weiler.

(5) **Ilaria Di Dedda**

Symmetric products and Fukaya-Seidel categories.

An important geometric invariant of hypersurface singularities is their Fukaya–Seidel category. In this talk, I will motivate and describe the study of a special family of singularities, called Brieskorn–Pham polynomials. In particular, we will consider Brieskorn–Pham singularities that are invariant with respect to the action of the symmetric group on their domain. I will describe the Fukaya–Seidel categories of the singularities defined on the symmetric product, and relate this to the Fukaya–Seidel categories of Brieskorn–Pham singularities. Time permitting, I will introduce "type A symplectic Auslander correspondence", a purely geometrical construction which realises a notable result in representation theory.

(6) **Nathaniel Bottman**

Recent progress toward the Symplectic (A-infinity,2)-Category.

In recent years, several authors have been working to understand the functoriality properties of the Fukaya category. My approach to this problem is to build a structure called the Symplectic (A-infinity,2)-Category (or "Symp", for short) whose objects are symplectic manifolds, and where hom(M0,M1) is Fuk(M0- x M1). After outlining Symp, I will describe some recent progress, including joint work with Katrin Wehrheim that develops Adiabatic Fredholm Theory in order to produce local finite-dimensional reductions for moduli spaces with strip-shrinking.

Titles and abstracts
Saturday

(1) **Aleksandra Marinković**

Concave contact boundaries of linear plumbings.

In this talk we will explore linear plumbings over spheres where at least one self-intersection number is non-negative. We will show that the boundary of such a plumbing admits a concave contact structure and we will explain when is this contact structure tight or overtwisted, depending on the self-intersection numbers of base spheres. The main tool in the proof is symplectic and contact toric geometry. We will also discuss further generalisations. This talk is based on a joint work with Jo Nelson, Ana Rechtman, Laura Starkston, Shira Tanny and Lyua Wang.

(2) **Adrien Petr**

Fukaya category over the Novikov ring and wrapped Floer theory.

Given a compact Lagrangian immersion in a symplectic manifold, one can consider its Fukaya category over the Novikov ring. In this talk, I will discuss conditions under which the latter relates to the partially wrapped Floer theory of a Weinstein manifold, which is in principle easier to understand. This is based on joint work with Tatsuki Kuwagaki and Vivek Shende.

(3) **Russell Avdek**

Perturbed compactness for contact surgery in dim=3+1.

I'll describe work in progress which will combinatorially compute the SFT of a contact 3-manifold from a surgery presentation. The isomorphism between geometric and combinatorial versions is defined by counting "generalized BEE curves" having arbitrary topology. It's well known that such moduli spaces have "bad boundary" strata of boundary-node degenerations. The talk will focus on how this "bad boundary" can be described via combinatorial string topology when using a special system of perturbations.