ERC Research Meeting - Schedule
Pavia, 25 - 27 June 2013

Each slot may denote an ordinary conference talk, or a lecture, or an open problems/Q&A session.

	Tue 25/06	**Wed 26/06**	**Thur 27/06**
10:30 - 11:30	Group A (Meinhardt)	Göttsche	Group A (Kool)
11:30 - 12:30	Group A (Bussi)	Migliorini	Group A (Davison)
12:30 - 13:30	break	break	break
13:30 - 14:30	break	break	break
14:30 - 15:30	Group B (Garcia Fernandez)	Phys (Hohenegger)	Group B (Filippini, Weist)
15:30 - 16:30	Group B (Sutherland)	Phys (Hohenegger)	Group B (Mandini, Stoppa)
16:30 - 17:00	coffee & cake	coffee & cake	coffee & cake
17:00 - 18:00	discussion	Phys discussion	discussion

All talks will take place in the Aula Beltrami of the Dipartimento di Matematica "F. Casorati", ground floor.
There will be an extra seminar by Alessandra Sarti on Friday morning at 11:30.

Special guests:

Goettsche, Refined curve counting on surfaces: Hilbert schemes, tropical geometry and Fock space.

Migliorini, The P=W conjecture: statement, motivation, known cases. This is a survey talk explaining the statement of the so called P=W conjecture, (due to de Cataldo Hausel and myself) its motivation, stemming from the determination, due to Hausel and Rodriguez-Villegas, of the Mixed Hodge polynomial of some character varieties, the few cases in which this conjecture was proved and the problems one finds to extend these proofs to the general case.

Some other titles/abstracts:

Bussi, An overview of categorification of DT theory and Lagrangian intersection using perverse sheaves and motives. We study the behaviour of perverse sheaves of vanishing cycles under action of symmetries and stabilization, and we investigate to what extent they depend on the function which defines them. We investigate the relation between perverse sheaves of vanishing cycles associated to isomorphic critical loci with their symmetric obstruction theories, pointing out what Derived Algebraic Geometry has to say about that. Similar results are proved for mixed Hodge modules and motivic Milnor fibres.
These results will be used to construct natural perverse sheaves, mixed Hodge modules and motives on moduli schemes of simple coherent sheaves on Calabi-Yau 3-folds equipped with 'orientation data', giving a categorification of Donaldson-Thomas invariants. To prove it we need a "Darboux Theorem" for k-shifted symplectic derived schemes for all k < 0, which says in particular that a (-1)-shifted symplectic derived scheme (which includes moduli schemes of simple coherent sheaves on a Calabi–Yau 3-fold) is Zariski locally equivalent to the critical locus of a regular function on a smooth scheme.
If time permits, we explain also how to construct natural perverse sheaf and motif on intersections of spin Lagrangians in a complex symplectic manifold, describing the relation with Fukaya categories and deformation-quantization.

Filippini/Weist, Review of GW/Kronecker correspondences, with some open questions.

Garcia-Fernandez, GMN theory and hyperkahler geometry.

Hohenegger, BPS Saturated Quantities in String Theory

Kool, Curves on surfaces, with an emphasis on connections with Seiberg-Witten.

Meinhardt, DT=IC. This is work in progress with Markus Reineke, and we aim at showing that the DT-invariants for quivers compute the intersection cohomology of their moduli spaces of representations. We actually prove a stronger version, and I will try to sketch the main ideas.

Mandini/Stoppa, On the asymptotics of Fock-Goncharov coordinates. We aim at presenting a clear statement of a conjecture of Gaiotto, Moore and Neitzke which apparently says something highly nontrivial on the dependence of some natural coordinates on the moduli of meromorphic connections on parameters, starting from scratch. This is pretty confusing though, you'll see.