GLEN seminar   "Invariants from Moduli Spaces"

University of Manchester, Monday November 9 2015

Programme:

(Note that all GLEN talks take place in Frank Adams Room 1 in the Alan Turing Building. The extra talk at 12:00 is in room G.107).

Extra talk:

12:00 Nathan Broomfield (Bielefeld)

Spaces of stability conditions and silting

I will discuss joint work with D. Pauksztello and D. Ploog, in which we use a CW complex constructed from silting objects to understand the spaces of Bridgeland stability conditions for certain algebraic examples.

GLEN talks:

13:10 Cristina Manolache (Imperial):

Gromov-Witten theory: what are we counting?

Enumerative questions have a very long history in Mathematics and have been subject to a significant revival in the nineties with the construction of the moduli space of stable maps and the machinery allowing us to integrate on these very singular spaces. However, moduli spaces of stable maps have many "unwanted" components which are reflected in the intersection numbers.
In this talk I will discuss a couple of examples in which we can separate contributions to intersection numbers of different components of the moduli space of stable maps.

14:30 Renzo Cavalieri (Colorado State)

Tropical geometry: a graphical interface for the GW/Hurwitz correspondence

In their study of the Gromov-Witten theory of curves [OP], Okounkov and Pandharipande used the degeneration formula to express stationary descendant invariants of curves in terms of Hurwitz numbers and one point descendant relative invariants. Then they use operator formalism to organize

the combinatorics of the degeneration formula, and the one point invariants into completed cycles.

In joint work with Paul Johnson, Hannah Markwig and Dhruv Ranganathan, we revisit their formalism and show that the Feynmann diagrams that are secretly behind the scenes in [OP] are in fact tropical curves. This yields some mild refinements of the Gromov-Witten/Hurwitz correspondence of [OP]. Time permitting we will describe how a generalization of these tecniques should lead to unveiling a similar structure in the stationary/descendant GW theory of sliceable surfaces.

16:00 Nicola Pagani (Liverpool)

What is the universal theta divisor?

The Jacobian varieties of smooth curves fit together to form a family over the moduli space of smooth curves called the universal Jacobian, and the theta divisors of these curves form a divisor in the universal Jacobian. A basic problem is to understand how these objects extend over the compact moduli space of pointed stable curves. In this talk I will review how to construct extensions of the universal Jacobian using a stability parameter, and then prove a wall-crossing formula describing how the class of the theta divisor depends on this parameter.