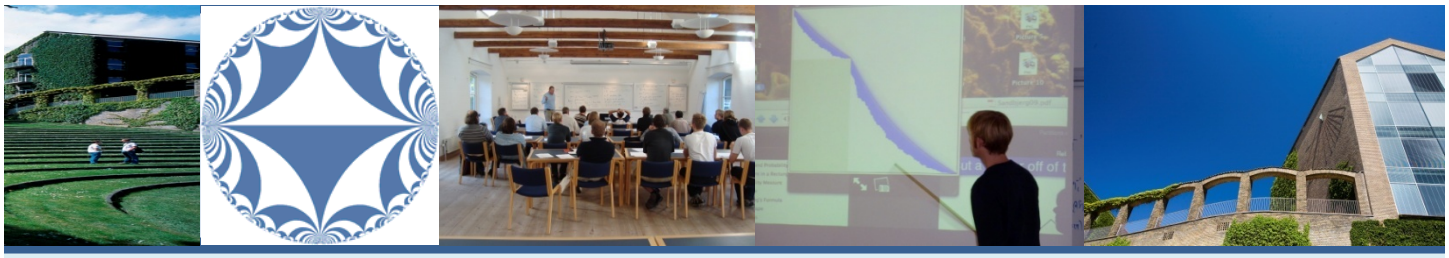

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CENTRE for QUANTUM GEOMETRY of MODULI SPACES

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PROFESSOR

· MAXIM KONTSEVICH ·

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MASTER CLASS

· WALL-CROSSING ·

16-20 August 2010

ABSTRACT:
Maxim Kontsevich will speak about two a priori unrelated theories which lead to the same class of wall-crossing formulae.

The first one is the theory of (motivic, or refined) Donaldson-Thomas invariants. It applies to

1) quivers (maybe with potentials), including cluster categories and matrix models,
2) moduli of coherent sheaves on algebraic surfaces, moduli of representations of an arbitrary finitely presented algebra,
3) 3-dimensional Calabi-Yau categories. One can define in each of these cases appropriate cohomology groups of moduli spaces, carrying a generalization of mixed Hodge structure. The generating series for Serre polynomials splits into an infinite product of quantum dilogarithms, depending on stability structure. Exponents in this expansion are refined Donaldson-Thomas invariants, and they jump in a universal way when we cross a wall in the space of stability structures.

The second theory is about the behavior of collapsing hyperkahler metrics, and of WKB asymptotics for complex integrable systems. Here one counts holomorphic discs with boundaries on Lagrangian submanifolds. Physics partially explains the relation between two theories, via BPS counting and geometry of hypermultiplet moduli spaces.

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More information and registration form is available at:

http://www.qgm.au.dk

Registration deadline 2 August 2010

Limited financial support is available for PhD students