

Scientific Report

The VBAC 2010 - Vector Bundles on Algebraic Curves meeting, was held in Instituto Superior Técnico, Universidade Técnica de Lisboa, in Lisbon, Portugal, between June 14 and June 18, 2010, with main topic “New Invariants and Stability Conditions”.

The quality of the research that was presented, both by the main speakers and in the contributed talks, led to the successful accomplishment of all the objectives of the scientific programme.

This programme followed, in every measurable way, the proposal submitted to the European Science Foundation in December 2009, within the ESF funded programme: Interactions of Low-Dimensional Topology and Geometry with Mathematical Physics (ITGP), whose favourable consideration and sponsorship was essential for the support of speakers and participants, in particular the young researchers.

Scientific Communications

The meeting consisted of the following 24 talks:

- *PT/DT-correspondence for orbifolds*, A. Bayer, Univ. of Connecticut, USA
- *On the calculus underlying Donaldson-Thomas theory*, K. Behrend, Univ. British Columbia, Canada
- *Hall algebras and curve-counting invariants*, T. Bridgeland, Univ. Sheffield, UK
- *Motivic Donaldson-Thomas invariants and the virtual motive of the Hilbert scheme of points*, J. Bryan, Univ. British Columbia, Canada
- *Hall algebra of coherent sheaves on curve orbifolds*, I. Burban, Univ. of Bonn, Germany
- *Cohomological gauge theory and Donaldson-Thomas invariants*, M. Cirafo, IST-UTL Lisboa, Portugal
- *Irreducibility of parabolic moduli over algebraic surface*, A. Dey, Hausdorff Institute of Mathematics, Bonn, Germany
- *Coupled equations for Kähler metrics and Yang-Mills connections*, M. García Fernández, Max Planck Institut-Bonn, Germany
- *Smoothing surface singularities via mirror symmetry*, M. Gross, UC San Diego, USA

- *Exceptional vector bundles associated to degenerations of surfaces*, P. Hacking, U. Massachusetts, USA
- *Modification of the Simpson moduli space $M_{3m+1}(\mathbb{P}_2)$ by vector bundles*,
- *A theory of generalized Donaldson-Thomas invariants*, D. Joyce, Oxford, UK
- *Singularities of free group character varieties*, S. Lawton, Univ. Texas-Pan American, USA
- *Moduli spaces of simple sheaves on K3 surfaces and deformations*, S. Mehrotra, Univ. of Wisconsin Madison, USA
- *The fundamental group scheme of a family of smooth projective varieties over W* , V. Mehta, Tata Institute of Fundamental Research, India
- *Quadratic pairs and the Hitchin map*, A. Oliveira, UTAD, Portugal
- *Introduction to curve counting on 3-folds*, R. Pandharipande, Princeton Univ, USA
- *Local curves*, R. Pandharipande, Princeton Univ, USA
- *Quiver moduli and integrality of DT-type invariants*, M. Reineke, Wuppertal, Germany
- *Asymptotically stable bundles*, H. Sá Earp, Unicamp, São Paulo, Brasil
- *A tropical view on Landau-Ginzburg models*, B. Siebert, Hamburg, Germany
- *The Hilbert space of four points on affine three-space and its refined DT invariant*, B. Szendrői, Oxford, UK
- *Moduli stacks of stable quotients and the wall-crossing*, Y. Toda, University of Tokyo, Japan
- *Morse theory and stable pairs*, G. Wilkin, University of Colorado, USA

Webpage

The webpage of the meeting, hosted in the URL <http://www.vbac2010.net>, will be maintained at least until the summer of 2011, and collects all relevant public information related to the meeting.

Lisbon, July 28, 2010,
Carlos Florentino

List of Participants

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- T. Baier, IST-UTL Lisboa, Portugal
- S. Barhoumi, University of Gafsa, Tunisia
- A. Bayer, Univ. of Connecticut, USA
- K. Behrend, British Columbia, Canada
- U. Bhosle, TIFR Mumbai, India
- M. Blume, University of Muenster, Germany
- L. Bodnarchuk, Max Planck Institut-Bonn, Germany
- S. Bradlow, Illinois, Urbana-Champaign, USA
- L. Brambila Paz, CIMAT, Guanajuato, Mexico
- C. Bremilla, Université Orsay Paris Sud, France
- T. Bridgeland, Sheffield, UK
- J. Bryan, British Columbia, Canada
- I. Burban, University of Bonn, Germany
- A. Buryak, Moscow State University, Russia
- J. Calabrese, University of Sheffield, UK
- A. Casimiro, Univ. Nova de Lisboa, Portugal
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- D. Joyce, Oxford, UK
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- R. Kemmler, Freie Univ. Berlin, Germany
- A. King, Bath, UK
- H. Kurke, Berlin, Germany
- H. Lange, Erlangen, Germany
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- C. Meachan, Edinburgh, Scotland
- S. Mehrotra, Univ. of Wisconsin Madison, USA
- V. Mehta, Tata Institute of Fundamental Research, India
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- M. van Garrel, Caltech, USA
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