

PROGRAMMA del convegno 'GEOMETRIA IN BICOCCA 2010'

GIOVEDÌ 6 MAGGIO

10.30-11.30 **Simon Salamon**, Complex structures and twistors

11.35-12.35 **Pietro Pirola**, Lagrangian surfaces

14.30-15.30 **Jacopo Stoppa**, On some recent results in Donaldson-Thomas theory

15.35-16.35 **Hui Li**, The fundamental group of symplectic manifolds with Lie group actions

17.10-18.10 **Marco Rigoli**, Sulla geometria dei tensori di Newton

VENERDÌ 7 MAGGIO

9.50-10.50 **Alberto Della Vedova**, On the asymptotic Chow stability of some constant scalar curvature polarized manifolds

10.55-11.55 **Paolo Cascini**, The Minimal Model Program revisited

12.10-13.10 **Mauro Nacinovich**, Orbits of real forms in complex flag manifolds

Tutte le conferenze si terranno nell'**aula 3014** al terzo piano del Dipartimento di Matematica e Applicazioni.

CENA SOCIALE

La sera del 6 maggio ci sarà una cena sociale al ristorante "Hostaria Della Lanterna", via Mercalli 4. Chi è interessato, è pregato di comunicarlo al più presto a Diego Conti (diego.conti@unimib.it), Alessandro Ghigi (alessandro.ghigi@unimib.it) o Gianni Manno (gianni.manno@unimib.it).

ABSTRACTS

GIOVEDÌ 6 MAGGIO

10.30-11.30 **Simon Salamon**

Complex structures and twistors

Abstract: I shall discuss questions arising (mainly in joint but separate projects with Jeff Viaclovsky and Massimiliano Povero) concerning complex structures on domains of Euclidean spaces in dimension 4 and 6, and associated surfaces in both the real and complex sense of the word.

11.35-12.35 **Pietro Pirola** (Università di Pavia)

Lagrangian surfaces

Abstract: Using Galois closure we construct algebraic varieties with non abelian fundamental group. In particular we produce a new lagrangian surface in its albanese variety which is an abelian fourfold. We discuss its topological signature and other geometric invariants, some related conjectures and new results on the classification of irregular surfaces. It is a joint work with Francesco Bastianelli and Lidia Stoppino.

14.30-15.30 **Jacopo Stoppa** (Cambridge University)

On some recent results in Donaldson-Thomas theory

Abstract: Gross and Pandharipande have shown how one can compute interesting invariants (e.g. the Euler characteristic) for some spaces of stable representations using a sort of "sum over histories" approach. I will explain this result, offering an application to sheaves on a Calabi-Yau 3-fold, and I would also like to discuss one striking analogy with the recent work of Gaiotto, Moore and Neitzke regarding a construction of hyperkaehler metrics.

15.35-16.35 **Hui Li** (Université de Bourgogne)

The fundamental group of symplectic manifolds with Lie group actions

Abstract: Let a compact connected Lie group G act on a symplectic manifold M in a Hamiltonian way. We discuss the relation between the fundamental group of M , of M/G and of all the symplectic quotients.

17.10-18.10 **Marco Rigoli** (Università di Milano)

Sulla geometria dei tensori di Newton

Sommario: I tensori di Newton nascono in modo naturale nel contesto di immersioni isometriche di ipersuperfici in spazi a curvatura costante. Attraverso di essi si definiscono alcuni operatori differenziali legati alle curvature dell'ipersuperficie: dalla curvatura media a quella di Gauss-Kronecker. Utilizzando questi ultimi e alcuni risultati analitici relativi all'indice di un operatore, dimostriamo una proprietà di distribuzione della mappa di Gauss.

VENERDÌ 7 MAGGIO

9.50-10.50 **Alberto Della Vedova** (Princeton University)

On the asymptotic Chow stability of some constant scalar curvature polarized manifolds.

Abstract: Given a polarized manifold (M, L) , the Yau-Tian-Donaldson conjecture states the equivalence between a certain algebraic stability of (M, L) and the existence of a constant scalar curvature Kähler metric representing the first Chern class of L . The right stability condition seems to be the K-stability, whose definition is due to Tian and Donaldson. On the other hand Donaldson and Mabuchi have proved that if (M, L) admits a constant scalar curvature Kähler metric, then (M, L) is asymptotically Chow polystable when ϵ is zero certain holomorphic invariants related to L . In this talk we will discuss the algebraic nature of these holomorphic invariants, and we will consider them in two special cases: projective bundles over curves and manifolds blown-up at a finite set of points. In the first case we will prove that a projective bundle over a curve of genus at least two carries a constant scalar curvature Kähler metric if and only if it is asymptotically Chow polystable. In the second case we will show new examples of constant scalar curvature polarized manifolds which are not asymptotically Chow polystable.

10.55-11.55 **Paolo Cascini** (Imperial College)

The Minimal Model Program revisited.

Abstract: The aim of the Minimal Model Program is to generalize the classification of complex projective surfaces, known in the early 20th century, to higher dimensional varieties. I will discuss a new approach to this Program.

12.10-13.10 **Mauro Nacinovich** (Università di Roma "Tor Vergata")

Orbits of real forms in complex flag manifolds

Abstract: The orbits M of a real form \mathbf{G}_0 of a complex semisimple Lie group \mathbf{G} in a complex flag manifold $X = \mathbf{G}/\mathbf{Q}$ are investigated from the point of view of CR geometry. The main topics will be finite type and holomorphic nondegeneracy conditions, canonical \mathbf{G}_0 -equivariant and Mostow fibrations, and topological properties of the orbits.