



The Abdus Salam  
International Centre for Theoretical Physics



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# Summer School and Conference on Hodge Theory and Related Topics

14 June - 2 July 2010  
ICTP - Trieste - Italy

Co-sponsored by the:  
Clay Mathematics Institute (CMI) and  
US National Science Foundation (NSF)

LIST OF ABSTRACTS  
PROGRAMME  
LIST OF PARTICIPANTS



The Abdus Salam  
International Centre for Theoretical Physics



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# Summer School and Conference on Hodge Theory and Related Topics

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## LIST OF ABSTRACTS

## **Beilinson-Hodge cycles on semiabelian varieties**

Donu Arapura

Perdue University, West Lafayette IN, USA

Abstract:

I want to discuss joint work with Manish Kumar, where we prove that cycles of type  $(i,i)$  on the  $i$ th rational cohomology of a semiabelian variety come from motivic cohomology. We also give criteria for this to hold for  $j$ th cohomology, when  $j$  is different from  $i$ .

# **Mixed Hard Lefschetz and Mixed Hodge-Riemann Bilinear Relations**

Eduardo Cattani

University of Massachusetts Amherst, MA, USA

## **Abstract:**

The Hard Lefschetz Theorem (HLT) and the Hodge-Riemann bilinear relations (HRR) hold in various contexts: they impose restrictions on the cohomology algebra of a smooth compact Kaehler manifold; they restrict the local monodromy of a polarized variation of Hodge structure; they impose conditions on the  $f$ -vectors of convex polytopes. While the statements of these theorems depend on the choice of a Kaehler class, or its analog, there is usually a cone of possible choices. It is then natural to ask whether the HLT and HRR remain true in a mixed context. In this talk we present a unified approach to proving the mixed HLT and HRR, generalizing the known results, and proving it in new cases such as the intersection cohomology of non-rational polytopes.

## **D-modules and categorical $\mathfrak{sl}(2)$ actions**

Sabin Cautis

Columbia University  
New York NY, USA

Abstract:

We define the notion of categorical  $\mathfrak{sl}(2)$  actions and illustrate with an action on D-modules on Grassmannians. I will then explain how the "associated graded" functor from D-modules to coherent sheaves induces a categorical  $\mathfrak{sl}(2)$  action on coherent sheaves on cotangent bundles to Grassmannians. Such  $\mathfrak{sl}(2)$  actions can be used to construct "interesting" equivalences of categories.

# **Remarks on the Lefschetz standard conjecture and hyperkähler varieties**

François Charles

Ecole Normale Supérieure  
Paris, France

Abstract:

We report on recent results on the Lefschetz standard conjectures. In degree 2, we reduce it to a local statement concerning local deformations of vector bundles on  $X$ . When  $X$  is hyperkähler, we give explicit criteria which imply the conjecture, using Verbitsky's theory of deformations of hyperholomorphic bundles. We prove the conjecture for smooth projective deformations of Hilbert schemes of points on K3 surfaces (joint with E. Markman).

## **Deformations of the Hitchin section and DGLA's**

Peter Dalakov

University of Massachusetts at Amherst  
Amherst MA, USA

Abstract:

As discovered by Hitchin in 1992, the Hitchin integrable system (on a curve of genus at least two) admits a section, a "global analogue" of the Kostant slice from representation theory.

In its construction, an important role is played by a particular nilpotent Higgs bundle, "the uniformising Higgs bundle".

I will describe some results about the DGLA/L-infinity deformation theory of these two objects.

# **Normal forms for lattice polarized K3 surfaces and Siegel modular forms**

Charles Doran

University of Alberta, Edmonton, Canada

Abstract:

We introduce a projective hypersurface "normal form" for a class of K3 surfaces which generalizes the classical Weierstrass normal form for complex elliptic curves. A geometric two-isogeny relates these K3 surfaces to the Kummer K3 surfaces of principally polarized abelian surfaces, with the normal form coefficients naturally identifying with the Igusa basis of Siegel modular forms of degree two. These results are reinterpreted through the lens of the Kuga-Satake Hodge Conjecture, and seen as a prediction coming from mirror symmetry. This is joint work with Adrian Clingher.



# Hodge domains and automorphic cohomology

Phillip Griffiths<sup>†</sup>  
Institute for Advanced Study  
Princeton NJ, USA

## Abstract:

Hodge domains  $D_{\mathbf{m},\varphi}$  are the universal parameter spaces for polarized Hodge structures whose general member has Mumford-Tate group a given semi-simple  $\mathbb{Q}$ -algebraic group  $M$  together with a circle  $\varphi: S^1 \rightarrow M(\mathbb{R})$ .

Recent work establishes that these  $M$  are exactly the class of semi-simple groups whose associated real Lie group has discrete series representations in  $L_2(M(\mathbb{R}))$ . Classical results of Schmid show that these discrete representations may be realized as  $L_2$ -cohomology  $H_{(2)}^d(D_{\mathbf{m},\varphi}, E_\lambda)$ , where  $E_\lambda \rightarrow D_{\mathbf{m},\varphi}$  is a homogeneous vector bundle defined by a weight  $\lambda$  and  $d$  is the dimension of the maximal compact subvarieties  $Y \subset D_{\mathbf{m},\varphi}$ . For a co-compact discrete group  $\Gamma$  and  $|\lambda|$  sufficiently big,  $H_{(2)}^d(D_{\mathbf{m},\varphi}, E_\lambda)$  is the only non-vanishing group and its dimension is a polynomial in  $|\lambda|$  with leading term:  $c|\lambda| \dim D_{\mathbf{m},\varphi}$ ,  $c > 0$ .

A long-standing issue has been to interpret this group geometrically in terms of holomorphic sections over some associated space. Here there is some classical work of Wells-Wolf and subsequent interesting work of Eastwood, Gindikin, and Wong. A more recent major issue has been to understand  $H_{(2)}^d(\Gamma \backslash D_{\mathbf{m},\varphi}, E_\lambda)$  arithmetically, interpreted as the infinite part of a cuspidal automorphic representation of  $L_2(M(\mathbb{Q}) \backslash M(\mathbb{A}))$ . Here in a very special case there are very interesting results of Carayol. This talk will give a partial overview of this subject, with special emphasis on what role the refined Hodge-theoretic data  $(M, \varphi)$ , beyond just  $M$  itself, might play.

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<sup>†</sup>This talk will be based on a joint work with Mark Green and Matt Kerr

**Semistable reduction and vanishing theorems revisited, after  
K - W. Lan and J. Suh**

Luc Illusie

Université de Paris Sud  
Orsay, France

Abstract:

Let  $k$  be an algebraically closed field of characteristic  $p$  and  $X, Y$  proper, smooth  $k$ -schemes. J. Suh has proved a vanishing theorem of Kollár type for certain nef and big line bundles  $L$  on  $Y$  and morphisms  $f : X \rightarrow Y$  having semistable reduction along a divisor with simple normal crossings. It holds if  $p = 0$  or if  $p > 0$  modulo some additional liftability mod  $p^2$  and dimension assumptions, and generalizes vanishing theorems of Esnault-Viehweg and of mine. I'll give an outline of the proof and sketch some variants and applications, due to K.-W. Lan and J. Suh, to the cohomology of certain automorphic bundles arising from PEL type Shimura varieties.

## **\*Mumford-Tate groups and the classification of Hodge structures\***

M. Kerr

University of Durham  
Durham, UK

Abstract:

Mumford-Tate groups are the symmetry groups of Hodge theory, and their orbits (Mumford-Tate domains) are the moduli spaces for Hodge structures with given symmetries. The theory *\*roughly\** bifurcates into the "classical case" of Shimura varieties and the "nonclassical case" where the infinitesimal period relation enters.

Recent work with P. Griffiths and M. Green looks at 2 classification problems: (a) which connected reductive algebraic groups over  $\mathbb{Q}$  are Mumford-Tate groups of polarized Hodge structures; and (b) which Mumford-Tate sub-domains appear inside a given period domain. In the talk I will concentrate on (b), working out a special case related to Calabi-Yau 3-folds which spotlights a rich interaction between the Galois theory of CM fields, Hodge theory and Lie theory.

## **Characteristic classes of complex hypersurfaces**

Laurentiu Maxim

University of Wisconsin Madison  
Madison WI, USA

Abstract:

An old problem in geometry and topology is the computation of topological and analytical invariants of complex hypersurfaces, e.g., Betti numbers, Euler characteristic, signature, Hodge-Deligne numbers, etc. While the non-singular case is easier to deal with, the singular setting requires a subtle analysis of the intricate relation between the local and global topological and/or analytical structure of singularities. In this talk I will explain how to compute characteristic classes of complex hypersurfaces in terms of local invariants of singularities.

This is joint work with S. Cappell, J. Schuermann and J. Shaneson.

## **Topology of Hitchin systems and Hodge theory of character varieties**

Luca Migliorini

University of Bologna  
Bologna, Italy

### **Abstract:**

I will report on recent joint work with M. de Cataldo and T. Hausel (arXiv:1004.1420), concerning an as yet mysterious coincidence between the weight filtration on the cohomology of the character variety parametrizing twisted representations (of rank 2) of the fundamental group of an algebraic curve, and the "perverse Leray" filtration associated to the Hitchin fibration. I will also quickly discuss other results of this kind and speculate about possible generalizations.

## Automorphic functions for moduli of polarized Hodge structures

Hossein Movasati

IMPA  
Rio de Janeiro, Brazil

Abstract:

In 1970 Griffiths introduced the moduli of polarized Hodge structures/the period domain  $\mathcal{D}$  and described a dream to enlarge  $\mathcal{D}$  to a moduli space of degenerating polarized Hodge structures. He asked also for the existence of a certain automorphic function theory for  $\mathcal{D}$ , generalizing the usual notion of automorphic forms on Hermitian symmetric domains. Since in general  $\mathcal{D}$  is not a Hermitian symmetric domain, the hope for existence of such a theory fails except in few cases.

In the present talk we reformulate and realize Griffiths problem in two directions. First, I explain some analytic spaces over  $\mathcal{D}$  for which one may state the Baily-Borel theorem on the unique algebraic structure of quotients of Hermitian symmetric domains by discrete arithmetic groups. In the simplest case of Hodge structures, namely  $h^{\{0\}}=h^{\{10\}}=1$ , one naturally reaches to the theory of quasi modular forms which is somewhat a new branch of number theory.

Second, I use the Gauss-Manin connection of families of varieties and construct new ordinary differential equations for which solutions represents automorphic function theory for such varieties. This idea is worked out in the case of Hodge structures of type  $h^{\{30\}}=h^{\{21\}}=h^{\{12\}}=h^{\{03\}}=1$ . The corresponding ordinary differential equation is in seven dimensions and it is derived from a variation of certain Calabi-Yau varieties. Such varieties appear in mathematical physics and are mirror dual to generic quintic Calabi-Yau three folds. The resulting automorphic function theory includes in a canonical way the generating series for the virtual number of rational curves on generic quintic hypersurfaces introduced by physicists Candelas, de la Ossa, Green and Parkes in 1991.

**The locus of the Hodge classes in admissible variations of  
mixed Hodge structure**

Pearlstein, Gregory

Michigan State University  
East Lansing MI, USA

Abstract:

Let  $S'$  be a Zariski-open subset of a complex manifold  $S$ , and let  $V$  be a variation of mixed Hodge structure on  $S'$ . Suppose that  $V$  is defined over the integers, graded polarizable, and admissible with respect to  $S$ . Let  $\text{Hdg}(V)$  denote the locus of Hodge classes in  $V$ . Then each component of  $\text{Hdg}(V)$  extends to an analytic space, finite and proper over  $S$ .

## **Neron models and Poincare bundles**

Christian Schnell

University of Illinois at Chicago  
Chicago IL, USA

### Abstract:

After reviewing the construction of complex-analytic Neron models for arbitrary polarized families of intermediate Jacobians, I would like to say what I can about Poincare bundles on them. (As proposed in the paper by Green and Griffiths.) I will also discuss the most interesting example, namely intermediate Jacobians of hyperplane sections.



**Neron models in log mixed Hodge theory by weak fans**  
(joint work of K. Kato, C. Nakayama)

Sampei Usi

Osaka University  
Osaka, Japan

Abstract:

We give a method to construct Neron models of intermediate Jacobians over higher dimensional base by means of log mixed Hodge theory. This becomes possible by generalizing fans to weak fans.



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## Summer School and Conference on Hodge Theory and Related Topics

Cosponsor(s): Clay Mathematics Institute (CMI) and US National Science Foundation (NSF)  
Organizer(s): Directors: E. Cattani, F. El Zein, P. Griffiths, Le D.T.; Local Organizer: L. Goettsche  
Trieste - Italy, 14 June 2010 - 2 July 2010

**Venue: Leonardo da Vinci Building Main Lecture Hall**

### Programme

**Monday, 14 June 2010** (Room:Leonardo da Vinci Building, Lobby)

**08:30 - 10:30** --- Registration and Administrative Formalities ---

**MINI INTRODUCTORY COURSES ON VARIETIES AND COHOMOLOGY** (Room:Leonardo da Vinci Building Main Lecture Hall)

**14 June 2010**

**10:30 - 10:45** **Lê Dung Tráng and Fouad Elzein**  
**Introductory remarks**

**10:45 - 11:45** **Loring TU / Tufts University, Medford MA, USA**  
**Topology, cohomology and sheaf theory - 1**

**11:45 - 14:00** --- Lunch break ---

**14:00 - 14:50** **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Complex manifolds, Kahler metrics, differential and harmonic forms - 1**

**14:50 - 15:00** --- Break ---

**15:00 - 15:50** **Lê Dung Tráng**  
**Algebraic varieties and schemes over any scheme. Non singular varieties - 1**

- 15:50 - 16:10 --- Coffee break ---
- 16:10 - 17:00 **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Complex manifolds, Kahler metrics, differential and harmonic forms - 2**
- 17:00 - 18:00 **Exercises and discussion of daily courses**

**Tuesday, 15 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)**

- 08:45 - 09:35 **Loring Tu / Tufts University, Medford MA, USA**  
**Topology, cohomology and sheaf theory - 2**
- 09:35 - 09:45 --- Coffee break ---
- 09:45 - 10:35 **Lê Dung Tráng**  
**Algebraic varieties and schemes over any scheme. Non singular varieties - 2**
- 10:35 - 10:45 --- Break ---
- 10:45 - 11:35 **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Complex manifolds, Kahler metrics, differential and harmonic forms - 3**
- 11:45 - 14:00 --- Lunch break ---
- 14:00 - 14:50 **Loring TU / Tufts University, Medford MA, USA**  
**Topology, cohomology and sheaf theory - 3**
- 14:50 - 15:00 --- Break ---
- 15:00 - 15:50 **Lê Dung Tráng**  
**Algebraic varieties and schemes over any scheme. Non singular varieties - 3**
- 15:50 - 16:10 --- Coffee break ---
- 16:10 - 17:00 **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Complex manifolds, Kahler metrics, differential and harmonic forms - 4**
- 17:00 - 18:00 **Exercises and discussion of daily courses**

**Wednesday, 16 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)**

- 08:45 - 09:35 **Loring TU / Tufts University, Medford MA, USA**  
**Topology, cohomology and sheaf theory - 4**
- 09:35 - 09:45 --- Coffee break ---
- 09:45 - 10:35 **Lê Dung Tráng**  
**Algebraic varieties and schemes over any scheme. Non singular varieties - 4**
- 10:35 - 10:45 --- Break ---

**10:45 - 11:35**     **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Complex manifolds, Kahler metrics, differential and harmonic forms - 5**

**11:35 - 14:00**     --- Lunch break ---

**BASIC HODGE THEORY (Room:Leonardo da Vinci Building Main Lecture Hall)**

**16 June 2010**

**14:00 - 14:50**     **F. ElZein / Institut de Mathematiques de Jussieu, Paris, France**  
**Hodge structures, mixed hodge structures - 1**

**14:50 - 15:00**     --- Break ---

**15:00 - 15:50**     **E. Cattani / University of Massachusetts at Amherst, USA**  
**Variation of HS's, degenerations of HS's - 1**

**15:50 - 16:10**     --- Break ---

**16:10 - 17:00**     **L. Migliorini / Universita' degli Studi di Bologna, Bologna, Italia**  
**Hodge theory of maps - 1**

**17:00 - 18:00**     **Exercises and discussion of daily courses**

**Thursday, 17 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)**

**08:45 - 09:35**     **F. ElZein / Institut de Mathematiques de Jussieu, Paris, France**  
**Hodge structures, mixed hodge structures - 2**

**09:35 - 09:45**     --- Coffee break ---

**09:45 - 10:35**     **L. Migliorini / Universita' degli Studi di Bologna, Bologna, Italia**  
**Hodge theory of maps - 2**

**10:35 - 10:45**     --- Break ---

**10:45 - 11:35**     **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Variation of HS's, degenerations of HS's - 2**

**11:45 - 14:00**     --- Lunch break ---

**14:00 - 14:50**     **F. ElZein / Institut de Mathematiques de Jussieu, Paris, France**  
**Hodge structures, mixed hodge structures - 3**

**14:50 - 15:00**     --- Break ---

**15:00 - 15:50**     **L. Migliorini / Universita' degli Studi di Bologna, Bologna, Italia**  
**Hodge theory of maps - 3**

**15:50 - 16:10**     --- Coffee break ---

**16:10 - 17:00**     **E. Cattani / University of Massachusetts at Amherst, Amherst MA, USA**  
**Variation of HS's, degenerations of HS's - 3**

17:00 - 18:00 Exercises and discussion of daily courses

Friday, 18 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

08:45 - 09:35 **F. ElZein** / *Institut de Mathematiques de Jussieu, Paris, France*  
**Hodge structures, mixed hodge structures - 4**

09:35 - 09:45 --- Coffee break ---

09:45 - 10:35 **E. Cattani** / *University of Massachussets at Amherst, Amherst MA, USA*  
**Variation of HS's, degenerations of HS's - 4**

10:35 - 10:45 --- Break ---

10:45 - 11:35 **M. de Cataldo** / *State University of New York at Stony Brook, Stony Brook NY, USA*  
**Hodge theory of maps - 1**

11:45 - 14:00 --- Lunch break ---

14:00 - 14:50 **F. ElZein** / *Institut de Mathematiques de Jussieu, Paris, France*  
**Hodge structures, mixed hodge structures - 5**

14:50 - 15:00 --- Break ---

15:00 - 15:50 **E. Cattani** / *University of Massachussets at Amherst, Amherst MA, USA*  
**Variation of HS's, degenerations of HS's - 5**

15:50 - 16:10 --- Coffee break ---

16:10 - 17:00 **M. de Cataldo** / *State University of New York at Stony Brook, Stony Brook NY, USA*  
**Hodge theory of maps - 2**

17:00 - 18:00 Exercises and discussion of daily courses

ALGEBRAIC CYCLES. ARITHMETIC ASPECTS OF HODGE STRUCTURES-MUMFORD-TATE GROUPS  
(Room:Leonardo da Vinci Building Main Lecture Hall)

21 June 2010

09:00 - 09:50 **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Period domains - 1**

09:50 - 10:10 --- Coffee break ---

10:10 - 11:00 **J. Murre** / *University of Leiden, Leiden, The Netherlands*  
**Chow groups - 1**

11:00 - 11:10 --- Break ---

11:10 - 12:00 **P. Brosnan** / *University of British Columbia, Vancouver BC, Canada*  
**Normal functions - 1**

12:00 - 14:00 --- Lunch break ---

- 14:00 - 14:50**     **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Period domains - 2**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **J. Murre** / *University of Leiden, Leiden, The Netherlands*  
**Chow groups - 2**
- 15:50 - 16:10**     --- Coffee break ---
- 16:10 - 17:00**     **P. Brosnan** / *University of British Columbia, Vancouver, Canada*  
**Normal functions - 2**
- 17:00 - 18:00**     **Exercises and discussion of daily courses/Parallel Sessions 1-2-3 (lecture rooms B, D, H)**

**Tuesday, 22 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)**

- 09:00 - 09:50**     **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Period domains - 3**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **J. Murre** / *University of Leiden, Leiden, The Netherlands*  
**Chow groups - 3**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **P. Brosnan** / *University of British Columbia, Vancouver BC, Canada*  
**Normal functions - 3**
- 12:00 - 14:00**     --- Lunch break ---
- 14:00 - 14:50**     **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Period domains - 4**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **M. Kerr** / *Durham University, Durham, UK*  
**Shimura varieties - 1**
- 15:50 - 16:10**     --- Coffee break ---
- 16:10 - 17:00**     **P. Brosnan** / *University of British Columbia, Vancouver BC, Canada*  
**Normals functions - 4**
- 17:00 - 18:00**     **Exercises and discussion of daily courses/Parallel Sessions 1-2-3 (lecture rooms B, D, H)**

**SHIMURA VARIETIES - ARITHMETIC ASPECTS OF ALGEBRAIC CYCLES (Room:Leonardo da Vinci Building Main Lecture Hall)**

**23 June 2010**

- 09:00 - 09:50**     **J. Murre** / *University of Leiden, Leiden, The Netherlands*  
**Chow groups - 4**

09:50 - 10:10 --- Coffee break ---

10:10 - 11:00 **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Period domains - 5**

11:00 - 11:10 --- Break ---

11:10 - 12:00 **P. Griffiths** / *Institute for Advanced Study, Princeton NJ, USA*  
**Mumford-Tate groups - 1**

12:00 - 14:00 --- Lunch break ---

14:00 - 14:00 --- AFTERNOON - FREE ---

**SHIMURA VARIETIES - ARITHMETIC ASPECTS OF ALGEBRAIC CYCLES** (Room:Leonardo da Vinci Building Main Lecture Hall)

**24 June 2010**

09:00 - 09:50 **J. Murre** / *University of Leiden, Leiden, The Netherlands*  
**Chow groups - 5**

09:50 - 10:10 --- Coffee break ---

10:10 - 11:00 **P. Griffiths** / *Institute for Advanced Study, Princeton NJ, USA*  
**Mumford-Tate groups - 2**

11:00 - 11:10 --- Break ---

11:10 - 12:00 **M. Kerr** / *Durham University, Durham, UK*  
**Shimura varieties - 2**

12:00 - 14:00 --- Lunch break ---

14:00 - 14:50 **P. Griffiths** / *Institute For Advanced Study, Princeton NJ, USA*  
**Mumford-Tate groups - 3**

14:50 - 15:00 --- Break ---

15:00 - 15:50 **M. Green** / *University of California at Los Angeles, Los Angeles CA, USA*  
**Application to the Beilinson-Bloch conjecture - 1**

15:50 - 16:10 --- Coffee break ---

16:10 - 17:00 **P. Brosnan** / *University of British Columbia, Vancouver BC, Canada*  
**Normal functions - 5**

17:00 - 18:00 **Exercises and discussion of daily courses/Parallel Sessions 1-2-3 (lecture rooms B, D, H)**

**SHIMURA VARIETIES - ARITHMETIC ASPECTS OF ALGEBRAIC CYCLES** (Room:Leonardo da Vinci Building Main Lecture Hall)

**25 June 2010**

- 09:00 - 09:50**     **M. Green** / *University of California at Los Angeles, Los Angeles, USA*  
**Application to the Beilinson-Bloch conjecture - 2**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **P. Griffiths** / *Institute for Advanced Study, Princeton NJ, USA*  
**Mumford-Tate groups - 4**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **C. Schnell** / *University of Illinois at Chicago, Chicago IL, USA*  
**Algebraic de Rham Cohomology and Betti Cohomology**
- 12:00 - 14:00**     --- Lunch break ---
- 14:00 - 14:50**     **M. Kerr** / *Durham University, Durham, UK*  
**Shimura varieties - 3**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **F. Charles** / *Ecole Normale Supérieure, Paris, France*  
**Hodge Loci and Absolute Hodge Classes 1**
- 15:50 - 16:10**     --- Coffee break ---
- 16:10 - 18:00**     **Exercises and discussion of daily courses/Parallel Sessions 1-2-3 (lecture rooms B, D, H)**

**Monday, 28 June 2010** (Room:Leonardo da Vinci Building Main Lecture Hall)

- 09:00 - 09:50**     **P. Griffiths** / *Institute For Advanced Study, Princeton NJ, USA*  
**Mumford-Tate groups - 5**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **F. Charles** / *Ecole Normale Supérieure, Paris, France*  
**Hodge Loci and Absolute Hodge Classes 2**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **M. Green** / *University of California at Los Angeles, Los Angeles, USA*  
**Application to the Beilinson-Bloch conjecture - 3**
- 12:00 - 14:00**     --- Lunch break ---
- 14:00 - 14:50**     **M. Kerr** / *Durham University, Durham, UK*  
**Shimura varieties - 4**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **C. Schnell** / *University of Illinois at Chicago, Chicago IL, USA*  
**Deligne's Theorem on Abelian Varieties, Part I**
- 15:50 - 16:30**     --- Coffee break ---



- 16:30 - 17:20**     **P. Griffiths / *Institute for Advanced Study, Princeton NJ, USA***  
**COLLOQUIUM - HODGE THEORY AND REPRESENTATION THEORY**
- 17:20 - 18:00**     **Exercises and discussion of daily courses**

**Tuesday, 29 June 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)**

- 09:00 - 09:50**     **M. Kerr / *Durham University, Durham, UK***  
**Deligne's Theorem on Abelian Varieties - II**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **M. Green / *University of California at Los Angeles, Los Angeles, USA***  
**Application to the Beilinson-Bloch conjecture - 4**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **M. Kerr / *Durham University, Durham, UK***  
**Shimura varieties - 5**
- 12:00 - 13:00**     --- Lunch break ---
- 13:00 - 13:50**     **M. Green / *University of California at Los Angeles, Los Angeles, USA***  
**Application to the Beilinson-Bloch Conjecture - 5**

**CONFERENCE ON HODGE THEORY AND APPLICATIONS TO PHYSICS AND ARITHMETIC (Room:Leonardo da Vinci Building Main Lecture Hall)**

**30 June 2010**

- 09:00 - 09:50**     **Donu Arapura / *Purdue University, West Lafayette, IN, USA***  
**Beilinson-Hodge cycles on semiabelian varieties**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **L. Illusie / *Université de Paris Sud, Orsay, France***  
**Semistable reduction and vanishing theorems revisited, after J. Suh.**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **P. Griffiths / *Institute For Advanced Study, Princeton NJ, USA***  
**Hodge domains and automorphic cohomology**
- 12:00 - 14:00**     --- Lunch break ---
- 14:00 - 14:50**     **M. Green / *University of California at Los Angeles, Los Angeles CA, USA***  
**Vanishing of Chern Polynomials for Hodge Domains**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **C. Schnell / *University of Illinois at Chicago, Chicago IL, USA***  
**Neron models and Poincare bundles**
- 15:50 - 16:10**     --- Coffee break ---

- 16:10 - 17:00**     **G. Pearlstein** / *Michigan State University, East Lansing MI, USA*  
**The locus of the Hodge classes in admissible variations of mixed Hodge structure**
- 17:00 - 17:10**     --- Break ---
- 17:10 - 18:00**     **H. Movasati** / *Instituto de Matematica Pura e Aplicada, Rio de Janeiro, Brazil*  
**Automorphic functions for moduli of polarized Hodge structures**
- 18:00 - 19:30**     (Room: Leonardo da Vinci Building Terrace)  
 --- SMALL RECEPTION FOR ALL PARTICIPANTS (on the terrace level) ---

**Thursday, 1 July 2010** (Room:Leonardo da Vinci Building Main Lecture Hall)

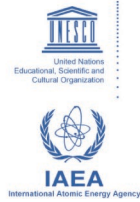
- 09:00 - 09:50**     **C. Doran** / *University of Alberta, Edmonton AB, Canada*  
**Normal forms for lattice polarized K3 surfaces and Siegel modular forms**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **Sampei Usui** / *Osaka University, Osaka, Japan*  
**Neron Models in log mixed Hodge theory by weak fans**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **J. Carlson** / *Clay Mathematics Institute, Cambridge MA, USA*  
**Further speculation and progress on Hodge theory for cubic surfaces**
- 12:00 - 14:00**     --- Lunch break ---
- 14:00 - 14:50**     **F. Charles** / *Ecole Normale Supérieure, Paris, France*  
**Remarks on the Lefschetz standard conjecture and hyperkähler varieties**
- 14:50 - 15:00**     --- Break ---
- 15:00 - 15:50**     **L. Maxim** / *University of Wisconsin Madison, Madison WI, USA*  
**Characteristic classes of complex hypersurfaces**
- 15:50 - 16:10**     --- Coffee break ---
- 16:10 - 17:00**     **M. Kerr** / *Durham University, Durham, UK*  
**Mumford-Tate groups and the classification of Hodge structures**
- 17:00 - 17:05**     --- Break ---
- 17:05 - 17:30**     **C. Siegel** / *University of Pennsylvania, Philadelphia PA, USA*  
**The Schottky Problem**
- 17:30 - 17:35**     --- Break ---
- 17:35 - 18:00**     **P. Dalakov** / *University of Massachusetts at Amherst, Amherst MA, USA*  
**Deformations of the Hitchin section and DGLA's**

**Friday, 2 July 2010** (Room:Leonardo da Vinci Building Main Lecture Hall)

- 09:00 - 09:50**     **E. Cattani** / *University of Massachusetts Amherst, MA, USA*  
**Mixed Hard Lefschetz and Mixed Hodge-Riemann Bilinear Relations**
- 09:50 - 10:10**     --- Coffee break ---
- 10:10 - 11:00**     **S. Cautis** / *Columbia University, New York NY, USA*  
**D-modules and categorical  $\mathfrak{sl}(2)$  actions**
- 11:00 - 11:10**     --- Break ---
- 11:10 - 12:00**     **L. Migliorini** / *Università degli Studi di Bologna, Bologna, Italia*  
**Topology of Hitchin systems and Hodge theory of character varieties (joint work with M. de Cataldo and T. Hausel)**
- 12:00 - 14:00**     --- Lunch break ---



The Abdus Salam  
International Centre for Theoretical Physics



Activity SMR: **2150**



CLAY  
MATHEMATICS  
INSTITUTE

# Summer School and Conference on Hodge Theory and Related Topics

14 June 2010 - 2 July 2010  
Trieste - ITALY

Clay Mathematics Institute (CMI) and US National Science Foundation (NSF)

**Total Number of Visitors: 129**

**Preliminary List of Participants**

No.	NAME and INSTITUTE	Nationality	Function
<b>DIRECTOR</b>		<b>Total number in this function: 4</b>	
1.	<b>CATTANI Eduardo Hector Carlos</b> Research Field : <b>TORIC GEOMETRY, HYPERGEOMETRIC FUNCTIONS</b>  Research Topic : <b>HODGE THEORY AND APPLICATIONS</b>  Permanent Institute: University of Massachusetts at Amherst Department of Mathematics and Statistics 710 N. Pleasant Street Amherst MA 01003-9305 UNITED STATES OF AMERICA Permanent Institute e mail cattani@math.umass.edu	UNITED STATES OF AMERICA	<b>DIRECTOR</b>
2.	<b>EL ZEIN Fouad</b> Research Field : <b>HODGE THEORY</b>  Research Topic : <b>MIXED HODGE STRUCTURES</b>  Permanent Institute: Institut de Mathematiques de Jussieu UMR 7586 du CNRS 175, rue du Chevaleret F-75013 Paris FRANCE Permanent Institute e mail elzein@math.jussieu.fr	FRANCE	<b>DIRECTOR</b>
3.	<b>GRIFFITHS Phillip A.</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>MUMFORD-TATE GROUPS</b>  Permanent Institute: Institute For Advanced Study Science Institutes Group Einstein Drive NJ 08540 Princeton UNITED STATES OF AMERICA Permanent Institute e mail pg@math.ias.edu	UNITED STATES OF AMERICA	<b>DIRECTOR</b>
4.	<b>LE Dung Trang</b> Research Field :  Research Topic :	VIET NAM	<b>DIRECTOR</b>

**CONFERENCE LECTURER**

**Total number in this function: 8**

5. **BROSAN Patrick** UNITED STATES OF AMERICA **CONFERENCE LECTURER**

Research Field : **HODGE THEORY AND ALGEBRAIC GEOMETRY**

Research Topic : **ADMISSIBLE VARIATIONS**

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6. **CARLSON James Andrew** UNITED STATES OF AMERICA **CONFERENCE LECTURER**

Research Field :

Research Topic :

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7. **DE CATALDO Mark** UNITED STATES OF AMERICA **CONFERENCE LECTURER**

Research Field : **ALGEBRAIC GEOMETRY**

Research Topic : **ALGEBRAIC MAPS**

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No.	NAME and INSTITUTE	Nationality	Function
8.	<p><b>GREEN Mark</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>HODGE THEORY</b></p> <p>Permanent Institute:</p> <p>University of California at Los Angeles  Department of Mathematics  Box 951555  Los Angeles CA 90095-1555  UNITED STATES OF AMERICA</p>	UNITED STATES OF AMERICA	<b>CONFERENCE LECTURER</b>
9.	<p><b>KERR Matthew</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>HODGE THEORY AND ALGEBRAIC CYCLES</b></p> <p>Permanent Institute:</p> <p>Department of Mathematical Sciences  Durham University  Science Laboratories  South Rd  Durham DH1 3LE  UNITED KINGDOM</p> <p>Permanent Institute e mail <a href="mailto:matthew.kerr@durham.ac.uk">matthew.kerr@durham.ac.uk</a></p>	UNITED STATES OF AMERICA	<b>CONFERENCE LECTURER</b>
10.	<p><b>MIGLIORINI Luca</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>HODGE THEORY</b></p> <p>Permanent Institute:</p> <p>Universita' degli Studi di Bologna  Dipartimento di Matematica  Piazza di Porta S. Donato 5  40126 Bologna  ITALY</p> <p>Permanent Institute e mail <a href="mailto:migliori@dm.unibo.it">migliori@dm.unibo.it</a></p>	ITALY	<b>CONFERENCE LECTURER</b>

No.	NAME and INSTITUTE	Nationality	Function
11.	<p><b>MURRE Jacob</b></p> <p>Research Field :</p> <p>Research Topic :</p> <p>Permanent Institute:</p> <p>Department of Mathematics University of Leiden Niels Bohrweg 1 P.O. Box 9512 2300 RA Leiden NETHERLANDS Permanent Institute e mail murre@math.leidenuniv.nl</p>	NETHERLANDS	<b>CONFERENCE LECTURER</b>
12.	<p><b>TU W. Loring</b></p> <p>Research Field :</p> <p>Research Topic :</p> <p>Permanent Institute:</p> <p>Tufts University Department of Mathematics Bromfield-Pearson Building 503 Boston Avenue Medford MA 02155 UNITED STATES OF AMERICA Permanent Institute e mail loring.tu@tufts.edu</p>	UNITED STATES OF AMERICA	<b>CONFERENCE LECTURER</b>



**CONFERENCE SPEAKER**

**Total number in this function: 11**

13.	<b>ARAPURA Donu</b>	UNITED STATES OF AMERICA	<b>CONFERENCE SPEAKER</b>
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Research Field :

Research Topic :

Permanent Institute:

Purdue University  
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 150 North University Street  
 West Lafayette IN 47907-2067  
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 Permanent Institute e mail [dvb@math.purdue.edu](mailto:dvb@math.purdue.edu)

14.	<b>CAUTIS Sabin</b>	CANADA	<b>CONFERENCE SPEAKER</b>
-----	---------------------	--------	---------------------------

Research Field : **ALGEBRAIC GEOMETRY**

Research Topic : **DERIVED CATEGORIES OF COHERENT SHEAVES, D-MODULES**

Permanent Institute:

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 2990 Broadway  
 New York 10027  
 NY, USA  
 UNITED STATES OF AMERICA

Present Institute:

Mathematical Research Sciences Institute  
 17 Gauss Way  
 Berkeley  
 CA, USA  
 UNITED STATES OF AMERICA

Until: **1 June 2010**

15.	<b>CHARLES Francois</b>	FRANCE	<b>CONFERENCE SPEAKER</b>
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Research Field : **ALGEBRAIC GEOMETRY**

Research Topic : **MOTIVES, ALGEBRAIC CYCLES**

Permanent Institute:

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 75005 Paris  
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 Permanent Institute e mail [francois.charles@ens.fr](mailto:francois.charles@ens.fr)

No.	NAME and INSTITUTE	Nationality	Function
16.	<p><b>DALAKOV Peter Georgiev</b>            Research Field :             Research Topic :</p> <p>Permanent Institute:            University of Massachusetts at Amherst            Department of Mathematics and Statistics            710 N. Pleasant Street            Amherst MA 01003-9305            UNITED STATES OF AMERICA            Permanent Institute e mail dalakov@math.umass.edu</p>	BULGARIA	<b>CONFERENCE SPEAKER</b>
17.	<p><b>DORAN Charles</b>            Research Field :             Research Topic :</p> <p>Permanent Institute:            University of Alberta            Department of Mathematical and Statistical Sciences            625 Central Academic Building            Edmonton AB T6G 2G1            CANADA            Permanent Institute e mail doran@math.ualberta.ca</p>	CANADA	<b>CONFERENCE SPEAKER</b>
18.	<p><b>ILLUSIE Luc</b>            Research Field :             Research Topic :</p> <p>Permanent Institute:            Universite de Paris Sud            Laboratoire de Mathematiques            UMR 8628 du CNRS            Batiment 425            91405 Orsay Cedex            FRANCE            Permanent Institute e mail Luc.Illusie@math.u-psud.fr</p>	FRANCE	<b>CONFERENCE SPEAKER</b>

No.	NAME and INSTITUTE	Nationality	Function
19.	<b>MAXIM Laurentiu</b> Research Field : <b>SINGULARITY THEORY</b>  Research Topic : <b>HYPERSURFACE SINGULARITIES, SINGULARITIES OF MAPS</b>  Permanent Institute: University of Wisconsin Madison Department of Mathematics Van Vleck Hall, 480 Lincoln Drive Madison WI 53706-1388 UNITED STATES OF AMERICA Permanent Institute e mail maxim@math.wisc.edu, laurentiu.maxim@gmail.com	ROMANIA	<b>CONFERENCE SPEAKER</b>
20.	<b>MOVASATI Hossein</b> Research Field : <b>COMPLEX GEOMETRY</b>  Research Topic : <b>AUTOMORPHIC FUNCTION THEORY AND HODGE STRUCTURES</b>  Permanent Institute: IMPA - Instituto de Matematica Pura e Aplicada Estrada Dona Castorina, 110 Rio De Janeiro BRAZIL Permanent Institute e mail hossein@impa.br	ISLAMIC REPUBLIC OF IRAN	<b>CONFERENCE SPEAKER</b>
21.	<b>PEARLSTEIN Gregory</b> Research Field :  Research Topic :  Permanent Institute: Michigan State University Department of Mathematics D 207 Wells Hall East Lansing - MI 48824-1027 UNITED STATES OF AMERICA Permanent Institute e mail gpearl@math.msu.edu	UNITED STATES OF AMERICA	<b>CONFERENCE SPEAKER</b>

No.	NAME and INSTITUTE	Nationality	Function
22.	<p><b>SCHNELL Christian</b>            Research Field : <b>HODGE THEORY</b>             Research Topic : <b>NORMAL FUNCTIONS</b>             Permanent Institute:            University of Illinois at Chicago            Department of Mathematics, Statistics, and Computer Science            851 S. Morgan St. (M/C 249)            Chicago IL 60607-7045            UNITED STATES OF AMERICA            Permanent Institute e mail cschnell@math.uic.edu</p>	GERMANY	<b>CONFERENCE SPEAKER</b>
23.	<p><b>USUI Sampei</b>            Research Field : <b>ALGEBRAIC VARIETIES, HODGE THEORY</b>             Research Topic :             Permanent Institute:            Osaka University            Graduate School of Science            Department of Mathematics            1-1 Machikaneyama-machi            Toyonaka            560-0043 Osaka            JAPAN            Permanent Institute e mail usui@math.sci.osaka-u.ac.jp</p>	JAPAN	<b>CONFERENCE SPEAKER</b>

**PARTICIPANT**

**Total number in this function: 106**

24. **ADEYEMO Praise Hammed** NIGERIA **PARTICIPANT**

Research Field : **ALGEBRAIC GEOMETRY AND ALGEBRAIC TOPOLOGY**

Research Topic : **GEOMETRY OF FLAG MANIFOLD, SCHUBERT CALCU, ....**

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 Department of Mathematics  
 Faculty of Science  
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 Oyo State  
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25. **ALANIS LOPEZ Lilia** MEXICO **PARTICIPANT**

Research Field : **ALGEBRAIC GEOMETRY**

Research Topic : **SINGULARITIES AND HODGE THEORY**

Permanent Institute:

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26. **ASHRAF Samia** PAKISTAN **PARTICIPANT**

Research Field : **ALGEBRAIC TOPOLOGY**

Research Topic : **CONFIGURATION SPACES**

Permanent Institute:

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 68-B New Mulim Town  
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No.	NAME and INSTITUTE	Nationality	Function
27.	<p><b>AYALEW MUHAMED Abera</b>            Research Field :             Research Topic :             Permanent Institute:            Arba Minch University            P.O. Box 21            Arbaminch            ETHIOPIA            Permanent Institute e mail ayalewnu@yahoo.com</p>	<p>ETHIOPIA                    ITALY            Present Institute e-mail: aayalew@ictp.it            Until: <b>31 August 2010</b></p>	<p><b>DIPLOMA COURSE FELLOW</b></p>
28.	<p><b>AYIVOR Audry Fafa</b>            Research Field : <b>LOW DIMENSIONAL TOPOLOGY</b>             Research Topic : <b>KNOTS, FLOER HOMOLOGY,ALGEBRAIC TOPOLOGY,MANIFOLDS</b>             Permanent Institute:            Kwame Nkrumah University of Science and Technology            Faculty of Physical Science            Department of Mathematics            Private Mail Bag            Kumasi            GHANA            Permanent Institute e mail audry.ayivor@uct.ac.za</p>	<p>GHANA                    Present Institute:            Department of Mathematics and Applied Mathematics,            University of Cape Town            7 University Avenue, 7701 Rondebosch            Cape Town 7701            Western Cape            SOUTH AFRICA            Present Institute e-mail: Audry.Ayivor@uct.ac.za            Until: <b>30 June 2010</b></p>	<p><b>PARTICIPANT</b></p>
29.	<p><b>AZAM Haniya</b>            Research Field : <b>ALGEBRAIC TOPOLOGY</b>             Research Topic : <b>CONFIGURATION SPACES OF REIMANN CURVES.</b>             Permanent Institute:            Abdus Salam School of Mathematical Sciences, Government            College University.            68-B, New Muslim Town            Lahore 54600            PAKISTAN            Permanent Institute e mail centipedes.united@gmail.com</p>	<p>PAKISTAN</p>	<p><b>PARTICIPANT</b></p>

No.	NAME and INSTITUTE	Nationality	Function
30.	<b>AZAR Monique Edmond</b> Research Field : <b>REAL ALGEBRAIC GEOMETRY</b>  Research Topic : <b>REAL SCHUBERT CALCULUS FOR FLAG MANIFOLDS</b>  Permanent Institute: American University of Beirut Faculty of Arts and Sciences Department of Mathematics Riad El Solh P. O. Box 11-0236/MATH Beirut 1107 2020 Beirut LEBANON Permanent Institute e mail ma193@aub.edu.lb	LEBANON	<b>PARTICIPANT</b>
31.	<b>BAILO Paolo</b> Research Field : <b>COMPLEX GEOMETRY</b>  Research Topic : <b>HYPERKAHLER MANIFOLDS, REDUCTION THEOREMS</b>  Permanent Institute: SISSA - ISAS International School of Advanced Studies via Beirut 2-4 Trieste 34151 Friuli Venezia Giulia ITALY Permanent Institute e mail paolo.bailo@gmail.com	ITALY	<b>PARTICIPANT</b>
32.	<b>BILGIN Emel</b> Research Field : <b>ARITHMETIC ALGEBRAIC GEOMETRY</b>  Research Topic : <b>CLASS OF CUBIC THREEFOLDS IN <math>K_0(\text{VAR}_K)</math></b>  Permanent Institute: Universitaet Duisburg Essen Fachbereich Mathematik Campus Essen Universitätsstr, 2 45117 Essen NRW GERMANY Permanent Institute e mail emel.bilgin@uni-due.de	TURKEY	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
33.	<b>BOUZIANI Abdelfatah Amara</b> Research Field :  Research Topic :  Permanent Institute: Centre Universitaire Larbi Ben M'Hidi-Oum El Bouaghi Faculte des Sciences Departement de Mathematiques Route de Constantine, 04000 Oum El Bouaghi ALGERIA Permanent Institute e mail aefbouziani@yahoo.fr	ALGERIA	<b>REGULAR ASSOCIATE</b>
34.	<b>BRUNEBARBE Yohan</b> Research Field : <b>NON-ABELIAN HODGE THEORY</b>  Research Topic : <b>PERIOD DOMAINS, SHIMURA VARIETIES</b>  Permanent Institute: Ecole Normale Superieure de Paris Departement de Mathematiques 45 rue d'Ulm 75005 Paris FRANCE Permanent Institute e mail yohan.brunebarbe@ens.fr	FRANCE	<b>PARTICIPANT</b>
35.	<b>BURNS Daniel M.</b> Research Field :  Research Topic :  Permanent Institute: University of Michigan Department of Mathematics 2074 East Hall, 530 Church Street Ann Arbor 48109 UNITED STATES OF AMERICA Permanent Institute e mail dburns@umich.edu	UNITED STATES OF AMERICA	<b>PARTICIPANT</b>

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No.	NAME and INSTITUTE	Nationality	Function
36.	<p><b>CATTANEO Andrea</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>CALABI-YAU VARIETIES</b></p> <p>Permanent Institute:            Universita degli Studi di Milano            Facolta di Scienze Matematiche Fisiche e Naturali            Dipartimento di Matematica            via Saldini, 50            Milano 20133            ITALY            Permanent Institute e mail andrea.cattaneo1@unimi.it</p>	ITALY	<b>PARTICIPANT</b>
37.	<p><b>CHAPDELAIN Hugo</b>            Research Field : <b>ALGEBRAIC NUMBER THEORY</b>             Research Topic : <b>12-TH HILBERT PROBLEM, STARK CONJECTURES, EISEN SE</b></p> <p>Permanent Institute:            Departement de mathematiques et de statistique de U- Laval            1045- av- de la Médecine            Quebec G1V 0A6            Québec            CANADA            Permanent Institute e mail hugo.chapdelaine@mat.ulaval.ca</p>	CANADA	<b>PARTICIPANT</b>
38.	<p><b>CHAUDHURI Chitrabhanu</b>            Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY</b>             Research Topic : <b>MODULI OF CURVES</b></p> <p>Permanent Institute:            Department of Mathematics            Northwestern University            2033 Sheridan Road            Evanston 60208-2730            IL            UNITED STATES OF AMERICA            Permanent Institute e mail chitro@u.northwestern.edu</p>	INDIA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
39.	<p><b>CHAVES Juliana Coelho</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>ABEL MAPS AND MODULI OF VECTOR BUNDLES</b></p> <p>Permanent Institute:            Universidade Federal Fluminense            Instituto de Matematica            Departamento de Analise            sala 08            Rua Mario Santos Braga, s/n - Campus do Valonguinho            Niteroi CEP 24020-140            Rio de Janeiro            BRAZIL            Permanent Institute e mail coelho@impa.br</p>	BRAZIL	<b>PARTICIPANT</b>
40.	<p><b>COLLINO Alberto</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>CYCLES AND THEIR STUDY BY MEANS OF HODGE THEORY</b></p> <p>Permanent Institute:            Universita' di Torino            Dipartimento di Matematica            Via Carlo Alberto 10            10123 Torino            ITALY            Permanent Institute e mail collino@alum.mit.edu</p>	ITALY	<b>PARTICIPANT</b>
41.	<p><b>DAN Ananyo</b>            Research Field : <b>HODGE THEORY</b></p> <p>Research Topic : <b>NOETHER-LEFSCHETZ LOCUS</b></p> <p>Permanent Institute:            Humboldt Universitat zu Berlin            Institute fur Mathematik            Rudower Chaussee 25            Johann von Neumann - Haus            12489 Berlin            GERMANY            Permanent Institute e mail ananyo.dan@gmail.com</p>	INDIA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
42.	<b>DE LA ROSA CASTILLO Miguel Angel</b> Research Field : <b>HODGE THEORY</b>  Research Topic : <b>MIXED HODGE STRUCTURES ON VERSAL FAMILIES</b>	MEXICO	<b>PARTICIPANT</b>
		Present Institute: CENTRO DE INVESTIGACION EN MATEMATICAS CIMAT Jalisco S/N, Col. Valenciana Guanajuato 36240 GUANAJUATO MEXICO Present Institute e-mail: delarosa@cimat.mx Until: <b>30 July 2011</b>	
43.	<b>DE VERA PIQUERO Carlos</b> Research Field :  Research Topic :	SPAIN	<b>PARTICIPANT</b>
	Permanent Institute:  Universitat Politecnica de Catalunya Jorge Girona Salgado 31 08034 Barcelona SPAIN		
44.	<b>DELLA NOCE Gloria</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>MODULI OF CURVES</b>	ITALY	<b>PARTICIPANT</b>
	Permanent Institute:  Universita degli Studi di Pavia Dipartimento di Matematica Felice Casorati via Ferrata, 1 Pavia 27100 ITALY Permanent Institute e mail gloriadn@libero.it		

No.	NAME and INSTITUTE	Nationality	Function
45.	<b>DENG Wei</b>  Research Field : <b>ALGEBRAIC GEOMETRY, MATHEMATICS</b>  Research Topic : <b>ALGEBRAIC CYCLES</b>  Permanent Institute: Department of Mathematics Campus Box 1146 Washington University in St Louis One Brookings Drive St Louis 63130 MO UNITED STATES OF AMERICA Permanent Institute e mail wdeng@math.wustl.edu	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>
46.	<b>DINAR Yassir Ibrahim</b>  Research Field : <b>INTEGRABLE SYSTEMS</b>  Research Topic : <b>BI-HAMILTONIAN AND FROBENIUS MANIFOLDS</b>  Permanent Institute: University of Khartoum Faculty of Mathematical Sciences P.O. Box 321 Khartoum SUDAN Permanent Institute e mail yassird@gmail.com	SUDAN	<b>POSTDOCTORAL FELLOW</b>
		Present Institute: The Abdus Salam International Centre for Theoretical Physics Mathematics Section Strada Costiera 11 34151 Trieste ITALY Present Institute e-mail: dinar@ictp.it Until: <b>11 July 2010</b>	
47.	<b>DINGOYAN Pascal</b>  Research Field : <b>COMPLEX GEOMETRY AND ANALYSIS</b>  Research Topic : <b>KAHLER GROUP, TOPOLOGY OF PROJECTIVE MANIFOLD</b>  Permanent Institute: University Pierre et Marie Curie Faculty of Mathematics Complex Analysis and Geometry 175, rue du Chevaleret 75013 Paris FRANCE Permanent Institute e mail dingoyan@math.jussieu.fr	FRANCE	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
48.	<b>DUBEY Umesh Kumar Vanktesh</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>DERIVED ALGEBRAIC GEOMETRY, TRIANGULAR GEOMETRY</b>  Permanent Institute: The Institute of Mathematical Sciences 4th cross road, CIT campus, Tharamani Chennai 600113 Tamilnadu INDIA Permanent Institute e mail dubey@imsc.res.in	INDIA	<b>AFFILIATE</b>
49.	<b>EGEILEH Michel</b> Research Field : <b>DIFFERENTIAL GEOMETRY</b>  Research Topic : <b>GEOMETRY OF SUPERGRAVITY THEORIES</b>  Permanent Institute: American University of Beirut, Faculty of Arts and Sciences, Department of Mathematics Riad El Solh Beirut 11072020 LEBANON Permanent Institute e mail me58@aub.edu.lb	LEBANON	<b>PARTICIPANT</b>
50.	<b>EL-GABRY Mohamed Nabil</b> Research Field : <b>SEISMOLOGY</b>  Research Topic : <b>SURFACE WAVE TOMOGRAPHY</b>  Permanent Institute: National Research Institute of Astronomy and Geophysics (NRIAG) National Data Center (NDC) P.O. Box 11421 El-Marsad Street Helwan 11722 Cairo EGYPT Permanent Institute e mail elgabrymn@yahoo.com	EGYPT	<b>JUNIOR ASSOCIATE</b>

No.	NAME and INSTITUTE	Nationality	Function
51.	<b>ESPOSITO Francesco</b> Research Field : <b>NUMBER THEORY</b>  Research Topic : <b>FONTAINE THEORY</b>  Permanent Institute: Universita' degli Studi di Padova Dip. di Matematica Via Trieste 63 35121 Padova ITALY Permanent Institute e mail <a href="mailto:esposito@math.unipd.it">esposito@math.unipd.it</a>	ITALY	<b>PARTICIPANT</b>
52.	<b>FALK Michael Jay</b> Research Field : <b>TOPOLOGY AND COMBINATORICS</b>  Research Topic : <b>COMPLEX HYPERPLANE ARRANGEMENTS AND RELATED TOPICS</b>  Permanent Institute: Department of Mathematics and Statistics Northern Arizona University Box 5717 Flagstaff AZ 86011-5717 UNITED STATES OF AMERICA Permanent Institute e mail <a href="mailto:michael.falk@nau.edu">michael.falk@nau.edu</a>	UNITED STATES OF AMERICA	<b>PARTICIPANT</b>
53.	<b>FERNANDEZ DE BOBADILLA Javier</b> Research Field :  Research Topic :  Permanent Institute: Universidad Complutense de Madrid Facultad de Ciencias Matematicas Departamento de Algebra Plaza de las Ciencias, 3 Ciudad Universitaria 28040 Madrid SPAIN Permanent Institute e mail <a href="mailto:javier@mat.csic.es">javier@mat.csic.es</a>	SPAIN	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
54.	<b>FERNANDEZ Javier</b> Research Field : <b>GEOEMTRY</b>  Research Topic : <b>HODGE THEORY</b>  Permanent Institute: Instituto Balseiro Universidad Nacional de Cuyo - C.N.E.A. Av. E. Bustillo 9500 R8402AGP Bariloche ARGENTINA Permanent Institute e mail jfernand@ib.edu.ar	ARGENTINA	<b>PARTICIPANT</b>
55.	<b>FILIPPINI Sara Angela</b> Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY</b>  Research Topic : <b>CALABI-YAU MANIFOLDS</b>  Permanent Institute: Universita degli Studi dell' Insubria Facolta di Scienze MM, FF, NN di Como Dipartimento di Fisica e Matematica Via Valleggio 11 Como 22100 Como ITALY Permanent Institute e mail saraangela.filippini@uninsubria.it	ITALY	<b>PARTICIPANT</b>
56.	<b>FONAREV Anton</b> Research Field : <b>ALGEBRAIC GEOMETRY, SINGULARITY THEORY</b>  Research Topic : <b>EQUIVARIANT SHEAVES, DERIVED CATEGORIES</b>  Permanent Institute: Moscow State University, Faculty of Mechanics and Mathematics, Department of Geometry and Topology GSP-2, Leninskie Gori Moscow RUSSIAN FEDERATION	RUSSIAN FEDERATION	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
57.	<p><b>FRESAN Javier</b></p> <p>Research Field : <b>ARITHMETIC GEOMETRY</b></p> <p>Research Topic : <b>ARAKELOV GEOMETRY, HODGE THEORY, SHIMURA VARIETIES</b></p> <p>Permanent Institute:</p> <p>LAGA UMR 7539 Institut Galilee  Universite Paris 13  99, Avenue Jean-Baptiste Clément  F-93430 Villetaneuse  FRANCE  Permanent Institute e mail fresan@math.univ-paris13.fr</p>	SPAIN	<b>PARTICIPANT</b>
58.	<p><b>FU Lie</b></p> <p>Research Field : <b>MATHEMATICS</b></p> <p>Research Topic : <b>ALGEBRAIC GEOMETRY</b></p> <p>Permanent Institute:</p> <p>Ecole Normale Supérieure  45 Rue d'Ulm  75005 Paris  FRANCE  Permanent Institute e mail lfu@clipper.ens.fr</p>	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>
59.	<p><b>GARCIA-RABOSO Alberto</b></p> <p>Research Field :</p> <p>Research Topic :</p> <p>Permanent Institute:</p> <p>University of Pennsylvania  Department of Mathematics  209 South 33rd Street  Philadelphia - PA 19104-6395  UNITED STATES OF AMERICA  Permanent Institute e mail agraboso@math.upenn.edu</p>	SPAIN	<b>PARTICIPANT</b>



No.	NAME and INSTITUTE	Nationality	Function
60.	<b>GATSINZI Jean-Baptiste</b> Research Field : <b>ALGEBRAIC TOPOLOGY</b>  Research Topic : <b>RATIONAL HOMOTOPY</b>  Permanent Institute: University of Botswana Department of Mathematics Private Bag 0022 Gaborone BOTSWANA Permanent Institute e mail GATSINZJ@MOPIPI.UB.BW	RWANDA	<b>VISITING SCIENTIST</b>
61.	<b>GHIMIRE Prakash</b> Research Field :  Research Topic :  Permanent Institute: Tribhuvan University Kirtipur Campus Central Dept. of Mathematics Kathmandu NEPAL Permanent Institute e mail prkshghimire@yahoo.com	NEPAL	<b>DIPLOMA COURSE FELLOW</b>
		Present Institute:  ITALY Present Institute e-mail: pghimire@ictp.it Until: <b>31 August 2010</b>	
62.	<b>GOLMAKANI Aii</b> Research Field : <b>DYNAMICAL SYSTEMS, CHAOS, BIFURCATION THEORY</b>  Research Topic :  Permanent Institute: Khayyam Institute of Higher Education Department of Mathematics P.O. Box: 91895163 Mashhad ISLAMIC REPUBLIC OF IRAN Permanent Institute e mail golmakani80@yahoo.com	ISLAMIC REPUBLIC OF IRAN	<b>VISITING SCIENTIST</b>
		Present Institute: The Abdus Salam International Centre for Theoretical Physics Mathematics Section Strada Costiera 11 34151 Trieste ITALY Until: <b>19 January 2011</b>	

No.	NAME and INSTITUTE	Nationality	Function
63.	<p><b>GOMEZ-MONT Xavier</b>            Research Field : <b>ANALYTIC GEOMETRY, SINGULARITIES</b></p> <p>Research Topic :</p> <p>Permanent Institute:            Centro de Investigacion en Matematicas (CIMAT)            Apdo. Postal 402            Guanajuato 36000 GTO            MEXICO            Permanent Institute e mail GMONT@FRACTAL.CIMAT.MX</p>	MEXICO	<b>VISITING SCIENTIST</b>
64.	<p><b>GONZALEZ VILLA Manuel</b></p> <p>Research Field :</p> <p>Research Topic :</p> <p>Permanent Institute:            Universidad Complutense de Madrid            Facultad de Ciencias Matematicas            Departamento de Algebra            Plaza de las Ciencias, 3            Ciudad Universitaria            28040 Madrid            SPAIN            Permanent Institute e mail mgv@mat.ucm.es</p>	SPAIN	<b>PARTICIPANT</b>
			<p>Present Institute:            University of Illinois at Chicago            Department of Mathematics, Statistics and Computer Science            851 S. Morgan Street            M/c 249, 322 SEO            Chicago IL 60607-7045            UNITED STATES OF AMERICA</p>
		Until:	<b>31 December 2010</b>
65.	<p><b>GURJAR Sudarshan</b></p> <p>Research Field : <b>COMPLEX GEOMETRY, ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>VECTOR BUNDLES, PRINCIPAL BUNDLES</b></p> <p>Permanent Institute:            Tata Institute of fundamental research, school of mathematics            Homi Bhabha Road, Navy Nagar, Mumbai            Mumbai 400005            Maharashtra            INDIA            Permanent Institute e mail sgurjar@math.tifr.res.in</p>	INDIA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
66.	<b>HARTMANN Annabelle</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>LOCAL FAMILIES OF SURFACES, RATIONAL POINTS</b>	GERMANY	<b>PARTICIPANT</b>
	Permanent Institute:  Universitaet Duisburg-Essen- Fachbereich Mathematik- Campus Essen Universitätsstr- 2 D-45141 Essen GERMANY Permanent Institute e mail annabelle.hartmann@uni-due.de		
67.	<b>HAYAMA Tatsuki</b> Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY</b>  Research Topic : <b>HODGE THEORY AND LOG GEOMETRY</b>	JAPAN	<b>PARTICIPANT</b>
	Permanent Institute:  Osaka University Faculty of Science Department of Mathematics Machikaneyama-cho 1-16 Toyonaka-Shi Osaka 560 JAPAN Permanent Institute e mail t-hayama@cr.math.sci.osaka-u.ac.jp		
68.	<b>HERNAIZ FOREST Miguel</b> Research Field :  Research Topic :	SPAIN	<b>PARTICIPANT</b>
	Permanent Institute:  Universitat Politecnica de Catalunya Jorge Girona Salgado 31 08034 Barcelona SPAIN		

No.	NAME and INSTITUTE	Nationality	Function
69.	<b>IYER Jaya Naganathan</b> Research Field :  Research Topic :  Permanent Institute: The Institute of Mathematical Sciences C.I.T. Campus Tharamani Chennai 600 113 INDIA Permanent Institute e mail jniyer@imsc.res.in	INDIA	<b>PARTICIPANT</b>
70.	<b>JAFARI Amir</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>HODGE THEORY, MOTIVES, ITERATED INTEGRALS</b>  Permanent Institute: Sharif University of Technology Dept. Mathematical Sciences P.O.Box 11365-9415 Azadi Ave. Tehran ISLAMIC REPUBLIC OF IRAN Permanent Institute e mail ajafari@sharif.ir	ISLAMIC REPUBLIC OF IRAN	<b>PARTICIPANT</b>
71.	<b>JAHANGIRI SAEIDABADI Majid</b> Research Field : <b>ALGEBRAIC NUMBER THEORY</b>  Research Topic : <b>LANGLAND'S PROGRAM, SHIMURA CURVES, ARITHMETIC GROUP</b>  Permanent Institute: School Of Mathematics Institute for Research in Fundamental Science IPM Niavaran Street Tehran ISLAMIC REPUBLIC OF IRAN Permanent Institute e mail jahangiri@mail.ipm.ir	ISLAMIC REPUBLIC OF IRAN	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
72.	<p><b>KADEISHVILI Tornike</b>            Research Field : <b>ALGEBRAIC TOPOLOGY</b>            Research Topic : <b>A(INFINITE)-ALGEBRAS</b></p> <p>Permanent Institute:            Georgian Academy of Sciences            Department of Theoretical Physics            A. Razmadze Institute of Mathematics            Aleksidze Str. 1            Tbilisi 380093            GEORGIA            Permanent Institute e mail kade@rmi.acnet.ge</p>	GEORGIA	<b>SENIOR ASSOCIATE</b>
73.	<p><b>KINDLER Lars</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>            Research Topic : <b>ARITHMETIC FUNDAMENTAL GROUPS, D-MODULES</b></p> <p>Permanent Institute:            Universitaet Duisburg-Essen            Fachbereich Mathematik            Campus Essen,            D-45117 Essen            GERMANY            Permanent Institute e mail lars.kindler@uni-due.de</p>	GERMANY	<b>PARTICIPANT</b>
74.	<p><b>LE Minh Ha</b>            Research Field :            Research Topic :</p> <p>Permanent Institute:            Vietnam National University            College of Science            Faculty of Mathematics, Mechanics &amp; Informatics            334 Nguyen Trai Str.            Thanh Xuan            Hanoi            VIET NAM            Permanent Institute e mail minhha@ynu.edu.vn</p>	VIET NAM	<b>JUNIOR ASSOCIATE</b>

No.	NAME and INSTITUTE	Nationality	Function
75.	<p><b>LE Thuong Quy</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>SINGULARITIES OF THE ALGEBRAIC VARIETIES</b>             Permanent Institute:            Ecole Normale Superieure            Departement de Mathematiques et Application            45, Rue d'Ulm            75230 Paris cedex Paris            Ile de France            FRANCE            Permanent Institute e mail leqthuong@yahoo.com</p>	VIET NAM	<b>PARTICIPANT</b>
76.	<p><b>LEE Jaepil</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>HODGE THEORY</b>             Permanent Institute:            Stony Brook Mathematics Department            Mathematics Department, Stony Brook University            Stony Brook 11794-3651            NY            UNITED STATES OF AMERICA            Permanent Institute e mail jefflee@math.sunysb.edu</p>	REPUBLIC OF KOREA	<b>PARTICIPANT</b>
77.	<p><b>LO GIUDICE Alessio</b>            Research Field : <b>GEOMETRY</b>             Research Topic : <b>DIFFERENTIAL GEOMETRY AND NON COMMUTATIVE GEOMETRY</b>             Permanent Institute:            International school for advanced study            ISAS            Mathematical Physics            via beirut 2,            Trieste            Friuli venezia Giulia            ITALY            Permanent Institute e mail logiudic@sissa.it</p>	ITALY	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
78.	<b>LOMBARDI Leandro Ezequiel</b> Research Field : <b>DIFFERENTIAL TOPOLOGY - MATHEMATICAL PHYSICS</b>  Research Topic : <b>MIRROR SYMMETRY, CONFORMAL FIELD THEORY, ADS/CFT</b>  Permanent Institute: Universidad de Buenos Aires Facultad de Ciencias Exactas y Naturales Departamento de Matematica Pabellón I - Ciudad Universitaria 1428 Buenos Aires ARGENTINA Permanent Institute e mail llombard@dm.uba.ar	ARGENTINA	<b>PARTICIPANT</b>
79.	<b>MARTINEZ MARTINEZ Javier</b> Research Field : <b>DIFFERENTIAL AND ALGEBRAIC GEOMETRY</b>  Research Topic : <b>GAUGE THEORY</b>  Permanent Institute: Universidad Complutense de Madrid Facultad de Ciencias Matematicas Plaza de las Ciencias s/n 28040 Madrid Madrid SPAIN Permanent Institute e mail jvmartinez8@gmail.com	SPAIN	<b>PARTICIPANT</b>
		Present Institute: Universitat de Barcelona Gran Via de Les Corts Catalanes 585 08007 Barcelona Catalunya SPAIN Present Institute e-mail: jvmartinez8@gmail.com Until: <b>30 June 2010</b>	
80.	<b>MARTINEZ RODRIGUEZ Huber</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>CHOW GROUPS AND CRYPTOGRAPHIC APLICATIONS</b>  Permanent Institute: Ciego de Avila University Faculty of Computer Science Highway to Moron km. 9,5 CP 69450 Ciego De Avila CUBA Permanent Institute e mail pfi_huber@informatica.unica.cu	CUBA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
81.	<b>MASSAMBA Fortune'</b>	PEOPLE'S REPUBLIC OF CONGO	<b>REGULAR ASSOCIATE</b>
	Research Field :		
	Research Topic :		
	Permanent Institute:		
	University of Botswana Department of Mathematics Private Bag 0022 Gaborone BOTSWANA Permanent Institute e mail massfort@yahoo.fr,massambaf@mopipi. ub.bw		
82.	<b>MASSARENTI Alex</b>	ITALY	<b>PARTICIPANT</b>
	Research Field : <b>ALGEBRAIC GEOMETRY</b>		
	Research Topic : <b>BIRATIONAL GEOMETRY OF ALGEBRAIC SCHEMES</b>		
	Permanent Institute:		
	SISSA Via Beirut 4 Trieste 34151 Italy ITALY Permanent Institute e mail alex.massarenti@sissa.it		
83.	<b>MASSRI Cesar</b>	ARGENTINA	<b>PARTICIPANT</b>
	Research Field : <b>ALGEBRAIC GEOMETRY</b>		
	Research Topic : <b>DEFORMATION THEORY, FOLIATIONS, D-MODULES</b>		
	Permanent Institute:		
	UBA, FCEN, Mathematics Department Ciudad Universitaria- Pabellon 1- Depto- de Matemáticas Capital Federal ARGENTINA		



No.	NAME and INSTITUTE	Nationality	Function
84.	<p><b>MEGY Damien</b></p> <p>Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY, HODGE THEORY</b></p> <p>Research Topic : <b>TOPOLOGY OF PROJECTIVE VARIETIES</b></p> <p>Permanent Institute:</p> <p>Institut Fourier  Universite Grenoble 1  100 rue des maths  BP74  38402 St Martin D'Herès Cedex  FRANCE  Permanent Institute e mail damien.megy@ujf-grenoble.fr</p>	FRANCE	<b>PARTICIPANT</b>
85.	<p><b>MIRZAI Behrooz</b></p> <p>Research Field : <b>ALGEBRAIC K-THEORY, HIGHER CHOW GROUPS</b></p> <p>Research Topic : <b>HOMOLOGY OF CLASSICAL GROUPS</b></p> <p>Permanent Institute:</p> <p>Institute for Advanced Studies in Basic Sciences  IASBS  Department of Mathematics  Gavazang  45195-1159 Zanjan  Zanjan  ISLAMIC REPUBLIC OF IRAN</p>	ISLAMIC REPUBLIC OF IRAN	<b>PARTICIPANT</b>
86.	<p><b>MONGARDI Giovanni</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>CLASSICAL ALGEBRAIC GEOMETRY</b></p> <p>Permanent Institute:</p> <p>Terza Università degli Studi di Roma  Dipartimento di Matematica  largo san Leonardo Murialdo 1  Roma 00146  ITALY  Permanent Institute e mail mongardi@mat.uniroma3.it</p>	ITALY	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
87.	<p><b>MOURTADA Hussein</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>ARC SPACE AND JET SCHEMES</b>             Permanent Institute:            Universite de Versailles            Baptement Fermat            45 avenue des Etats Unis            Versailles            FRANCE            Permanent Institute e mail <a href="mailto:mourtada@math.uvsq.fr">mourtada@math.uvsq.fr</a></p>	LEBANON	<b>PARTICIPANT</b>
88.	<p><b>MUKHAMEDOV Farruh Maksutovich</b>            Research Field :             Research Topic :             Permanent Institute:            International Islamic University of Malaysia            Faculty of Science            Department of Computational and Theoretical Sciences            Jalan Istana            Bandar Indra Mahkota            Pahang 25200            MALAYSIA            Permanent Institute e mail <a href="mailto:far75m@yandex.ru">far75m@yandex.ru</a></p>	UZBEKISTAN	<b>JUNIOR ASSOCIATE</b>
			Present Institute e-mail: <a href="mailto:farrukh_m@iiu.edu.my">farrukh_m@iiu.edu.my</a>
89.	<p><b>NARIMAN Sam</b>            Research Field : <b>ALGEBRAIC TOPOLOGY</b>             Research Topic : <b>COMPLEX COBORDISM</b>             Permanent Institute:            Sharif University of technology            Azadi St            1597885711 Tehran            ISLAMIC REPUBLIC OF IRAN            Permanent Institute e mail <a href="mailto:sam.nariman@gmail.com">sam.nariman@gmail.com</a></p>	ISLAMIC REPUBLIC OF IRAN	<b>PARTICIPANT</b>
			Present Institute: Mathematisches Institut Fachbereich Mathematik und Informatik der Universitaet Munster Einsteinstrasse 62 48149 Munster GERMANY Present Institute e-mail: <a href="mailto:snari_01@uni-muenster.de">snari_01@uni-muenster.de</a> Until: <b>31 December 2011</b>

No.	NAME and INSTITUTE	Nationality	Function
90.	<p><b>NGUELIFACK Brice Merlin</b>            Research Field : <b>DIFFERENTIAL EQUATIONS, ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>ELLIPTIC CURVES</b></p> <p>Permanent Institute:            Universite de Yaounde I            Faculte' Des Sciences            P.O. Box 812            Yaounde            REPUBLIC OF CAMEROON</p>	REPUBLIC OF CAMEROON	<b>DIPLOMA COURSE FELLOW</b>
		Present Institute:	
		ITALY	
		Present Institute e-mail: bnguelif@ictp.it	
		Until: <b>31 August 2010</b>	
91.	<p><b>NGUYEN Le Dang Thi</b>            Research Field : <b>ARITHMETIC ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>RATIONAL POINTS</b></p> <p>Permanent Institute:            Universitaet Duisburg-Essen            Mathematik- Essen            45117 Essen- Germany            Segerothstraße            45117 Essen            NWR            GERMANY            Permanent Institute e mail le.nguyen@uni-due.de</p>	GERMANY	<b>PARTICIPANT</b>
		Present Institute:	
		Universitaet Duisburg-Essen Mathematik- Campus Essen Segerothstr. 45117 Essen NWR GERMANY	
		Present Institute e-mail: le.nguyen@uni-due.de	
		Until: <b>30 April 2011</b>	
92.	<p><b>NGUYEN Viet Anh</b>            Research Field : <b>COMPLEX VARIABLES</b></p> <p>Research Topic : <b>COMPLEX ANALYSIS, COMPLEX DYNAMICS</b></p> <p>Permanent Institute:            Universite Paris Sud XI            Batiment 425, Mathematique            15 rue Georges Clémenceau            F-91405 Orsay Cedex            FRANCE            Permanent Institute e mail VietAnh.Nguyen@math.u-psud.fr</p>	VIET NAM	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
93.	<b>ONGARO Jared Nyang'au</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>D-MODULES THEORY</b>  Permanent Institute: University of Nairobi Faculty of Science School of Mathematics Riverside Drive - Chiromo Nairobi 00100 KENYA Permanent Institute e mail jaredongaro@yahoo.com, maths@uonbi.ac.ke	KENYA	<b>DIPLOMA COURSE FELLOW</b>   Present Institute:  ITALY Present Institute e-mail: jongaro@ictp.it Until: <b>31 August 2010</b>
94.	<b>ORR Martin</b> Research Field : <b>NUMBER THEORY</b>  Research Topic : <b>ABELIAN VARIETIES, MUMFORD-TATE CONJECTURE</b>  Permanent Institute: Departement de Mathematiques Faculte des Sciences d'Orsay Universite Paris Sud 11 Bat. 425 91405 Orsay Cedex FRANCE Permanent Institute e mail martin.orr@u-psud.fr	UNITED KINGDOM	<b>PARTICIPANT</b>
95.	<b>PABON CADAVID Jenny Alejandra</b> Research Field : <b>NUMBER THEORY</b>  Research Topic : <b>LOCAL AND <math>p</math>-ADIC FIELDS</b>  Permanent Institute: Universidad Nacional de Colombia Departamento de Matematicas Sede Bogota Carrera 30 Calle 45 Ciudad Universitaria Bogota' COLOMBIA Permanent Institute e mail japabonc@unal.edu.co	COLOMBIA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
96.	<p><b>PARVEEN Saima</b>            Research Field : <b>ALGEBRAIC TOPOLOGY AND GEOMETRY</b>            Research Topic : <b>CONFIGURATION SPACES AND HYPERPLANE ARRANGEMENTS</b></p> <p>Permanent Institute:            Abdus Salam Institute of Mathematical Sciences GC University,            Lahore            68-B New Mulim Town            Lahore 54000            Pakistan            PAKISTAN            Permanent Institute e mail saimashaa@gmail.com</p>	PAKISTAN	<b>PARTICIPANT</b>
97.	<p><b>PATAKFALVI Zsolt</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>            Research Topic : <b>GEOMETRY OF HIGHER DIMENSIONAL MODULI SPACES</b></p> <p>Permanent Institute:            University of Washington            Department of Mathematics, Box 354350            Seattle 98195            Washington            UNITED STATES OF AMERICA            Permanent Institute e mail pzs@math.washington.edu</p>	HUNGARY	<b>PARTICIPANT</b>
98.	<p><b>PHO Duc Tai</b>            Research Field :            Research Topic :</p> <p>Permanent Institute:            Vietnam National University At Hanoi            Hanoi University of Science            Fac.Maths.Mechanics &amp; Informatics            334 Nguyen Trai Road            Thanh Xuan            Hanoi            VIET NAM            Permanent Institute e mail phoductai@yahoo.com</p>	VIET NAM	<b>JUNIOR ASSOCIATE</b>

No.	NAME and INSTITUTE	Nationality	Function
99.	<p><b>PORTELLI Dario</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>TOPOLOGICAL PROPERTIES OF PROJECTIVE VARIETIES</b>             Permanent Institute:            Universita' di Trieste            Dip. di Scienze Matematiche            Via Valerio 12/b            34127 Trieste            ITALY            Permanent Institute e mail porteda@units.it</p>	ITALY	<b>PARTICIPANT</b>
100.	<p><b>QUALLBRUNN Federico</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>MODULI SPACES OF FOLIATIONS</b>             Permanent Institute:            Universidad de Buenos Aires- Facultad de Ciencias Exactas y Naturales- Departamento de Matematica            Ciudad Universitaria Pabellón 1            1428 Buenos Aires            Capital Federal            ARGENTINA            Permanent Institute e mail fquallb@dm.uba.ar</p>	ARGENTINA	<b>PARTICIPANT</b>
101.	<p><b>RASTEGAR Arash</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>SELF-SIMILARITY</b>             Permanent Institute:            Sharif University of Technology            Department of Mathematical Sciences            P.O.Box 11365-9415            Tehran            ISLAMIC REPUBLIC OF IRAN            Permanent Institute e mail rastegar@sharif.ir</p>	ISLAMIC REPUBLIC OF IRAN	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
102.	<p><b>RAVIOLO Emanuele</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>GEOMETRY OF FANO VARIETIES</b>             Permanent Institute:            Universita' degli Studi di Pavia            Dipartimento di Matematica "Felice Casorati"            Via Ferrata 1            27100 Pavia            ITALY            Permanent Institute e mail emanueleraviolo@libero.it</p>	ITALY	<b>PARTICIPANT</b>
103.	<p><b>RAZA Zahid</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>TOPOLOGY OF PLANE CURVES</b>             Permanent Institute:            Abdus Salam School of Mathematical Sciences            GCU Lahore            M.M. Alam Road, 35-C2- Gulberg III,            Lahore            PAKISTAN            Permanent Institute e mail zahid@math.cas.cz</p>	PAKISTAN	<b>PARTICIPANT</b>
104.	<p><b>ROBAYO RICO Maria Fernanda</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic :</p> <p>Permanent Institute:            Universidad Nacional de Colombia            Departamento de Matematicas            Sede Bogota            Carrera 30 Calle 45            Ciudad Universitaria            Bogota'            COLOMBIA            Permanent Institute e mail mrobayor@unal.edu.co</p>	COLOMBIA	<b>DIPLOMA COURSE FELLOW</b>
		Present Institute:	
		ITALY Present Institute e-mail: mrobayo@ictp.it Until: <b>31 August 2010</b>	

No.	NAME and INSTITUTE	Nationality	Function
105.	<b>ROBLES Colleen</b> Research Field : <b>DIFFERENTIAL GEOMETRY</b>  Research Topic : <b>EQUIVALENCE OF GEOMETRIC STRUCTURES.</b>  Permanent Institute: Texas A&M University Mathematics Department Mailstop 3368 College Station 77843 TX UNITED STATES OF AMERICA Permanent Institute e mail robles@math.tamu.edu	UNITED STATES OF AMERICA	<b>SENIOR PARTICIPANT</b>
106.	<b>RODRIGUEZ GONZALEZ Beatriz</b> Research Field :  Research Topic :  Permanent Institute: Universidad Complutense de Madrid Facultad de Ciencias Matematicas Departamento de Algebra Plaza de las Ciencias, 3 Ciudad Universitaria 28040 Madrid SPAIN Permanent Institute e mail rgbea@imaff.cfmac.csic.es	SPAIN	<b>PARTICIPANT</b>
107.	<b>RUZIMURADOV Haydar</b> Research Field : <b>NUMBER THEORIES</b>  Research Topic : <b>GEOMETRY OF NUMBERS, ALGEBRAIC GEOMETRY</b>  Permanent Institute: Samarkand state university, Faculty Mechanics and Mathematics University boolevard, 15 Samarkand 140104 Samarkand UZBEKISTAN Permanent Institute e mail rxx05@mail.ru	UZBEKISTAN	<b>PARTICIPANT</b>





No.	NAME and INSTITUTE	Nationality	Function
111.	<p><b>SEBASTAIN Ronnie Mani</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>ALGEBRAIC CYCLES, MODULI SPACES</b>             Permanent Institute:            School of Mathematics, Tata Institute of Fundamental Research            Homi Bhabha Road, Colaba            Mumbai 400005            Maharashtra            INDIA            Permanent Institute e mail ronnie@math.tifr.res.in</p>	INDIA	<b>PARTICIPANT</b>
112.	<p><b>SHABBIR Khurram</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>TORSIONS IN THE BRIESKORN MODULES</b>             Permanent Institute:            Govt College University of Lahore            Department of Mathematics            GCU Katchery Road            Lahore 54000            PAKISTAN            Permanent Institute e mail khurramsms@gmail.com</p>	PAKISTAN	<b>PARTICIPANT</b>
113.	<p><b>SIEGEL Charles</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>HODGE THEORY, MATHEMATICAL PHYSICS</b>             Permanent Institute:            University of Pennsylvania            Department of Mathematics            209 South 33rd Street            Philadelphia 19104-6395            Pennsylvania            UNITED STATES OF AMERICA            Permanent Institute e mail siegelch@math.upenn.edu</p>	UNITED STATES OF AMERICA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
114.	<p><b>SMIRNOV Maxim</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>QUANTUM COHOMOLOGY, GROMOV-WITTEN INVARIANTS</b></p> <p>Permanent Institute:</p> <p>Max Planck Institute for Mathematics  Vivatsgasse 7  53111 Bonn  GERMANY  Permanent Institute e mail maxime.smirnov@gmail.com</p>	RUSSIAN FEDERATION	<b>PARTICIPANT</b>
115.	<p><b>SOLEEV Akhmadjon</b></p> <p>Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>SINGULARITY THEORY, NEWTON POLYHEDRA</b></p> <p>Permanent Institute:</p> <p>Department of Mathematics and Mechanics of Samarkand State  University  15, University blvd.,  Samarkand 140104  Samarkand  UZBEKISTAN  Permanent Institute e mail asoleev@yandex.ru</p>	UZBEKISTAN	<b>PARTICIPANT</b>
116.	<p><b>SUN Peng</b></p> <p>Research Field : <b>ALGEBRAIC CYCLES, K-THEORY</b></p> <p>Research Topic : <b>MOTIVES</b></p> <p>Permanent Institute:</p> <p>University of Duisburg Essen  Department of Mathematics  45117 Essen  GERMANY  Permanent Institute e mail mapths@gmail.com</p>	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
117.	<p><b>SVALDI Roberto</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>HODGE THEORY AND ITS TOPOLOGICAL IMPLICATIONS</b></p> <p>Permanent Institute:            Dipartimento di Matematica            Universita degli Studi di Roma 3            Largo San Leonardo Murialdo, 1            Rome 00146            ITALY            Permanent Institute e mail <a href="mailto:robysvaldi@gmail.com">robysvaldi@gmail.com</a></p>	ITALY	<b>PARTICIPANT</b>
118.	<p><b>TEYSSIER Jean Baptiste</b>            Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY</b></p> <p>Research Topic : <b>HODGE THEORY, MIRROR SYMMETRY</b></p> <p>Permanent Institute:            Centre de Mathematiques Laurent Schwartz            CMLS Ecole Polytechnique            91 128 Palaiseau            FRANCE            Permanent Institute e mail <a href="mailto:jean-baptiste.teyssier@math.polytechnique.fr">jean-baptiste.teyssier@math.polytechnique.fr</a></p>	FRANCE	<b>PARTICIPANT</b>
119.	<p><b>TIPLER Carl</b>            Research Field : <b>KAHLER GEOMETRY</b></p> <p>Research Topic : <b>EXTREMAL KAHLER METRICS</b></p> <p>Permanent Institute:            Universite de Nantes            Departement de Mathematiques            laboratoire Jean Leray            2, rue de la Houssiniere            44000 Nantes            Pays de la Loire            FRANCE            Permanent Institute e mail <a href="mailto:carl.tipler@univ-nantes.fr">carl.tipler@univ-nantes.fr</a></p>	FRANCE	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
120.	<b>TOMMASINI Matteo</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>REDUCED COMPEX ORBIFOLDS- ÉTALE PROPER GROUPOIDS</b>  Permanent Institute: Mathematical Physics Sector SISSA Via Beirut 2-4 Trieste 34151 ITALY Permanent Institute e mail matteo.tomm@libero.it	ITALY	<b>PARTICIPANT</b>
121.	<b>TRAN Nguyen Khanh Linh</b> Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>VARIETIES, CONICS</b>  Permanent Institute: Department of mathematics, Hue University's College of Education 34 Le Loi Hue VIET NAM Permanent Institute e mail tnkhanhlinh141@gmail.com	VIET NAM	<b>PARTICIPANT</b>
122.	<b>TRENTINAGLIA Giorgio</b> Research Field : <b>COMPLEX AND SYMPLECTIC GEOMETRY</b>  Research Topic : <b>WEINSTEIN CONJECTURE, MIRROR SYMMETRY</b>  Permanent Institute: Courant Research Centre Higher Order Structures Department of Mathematics University of Goettingen Bunsen Strasse 3-5 37073 Goettingen Niedersachsen GERMANY Permanent Institute e mail gtrentin@uni-math.gwdg.de	ITALY	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
123.	<p><b>UMA Vikraman</b>            Research Field :             Research Topic :             Permanent Institute:            Indian Institute of Technology            Department of Mathematics            Chennai            600 036 Madras            INDIA            Permanent Institute e mail vuma@iitm.ac.in</p>	INDIA	<b>JUNIOR ASSOCIATE</b>
124.	<p><b>VLASENKO Mariia</b>            Research Field : <b>NUMBER THEORY AND ARITHMETIC GEOMETRY</b>             Research Topic : <b>K-THEORY, BEILINSON'S CONJECTURES, POLYLOGARITHMS</b>             Permanent Institute:            Max Planck Institute for Mathematics            Vivatsgasse, 7            53111 Bonn            GERMANY            Permanent Institute e mail masha.vlasenko@gmail.com</p>	UKRAINE	<b>PARTICIPANT</b>
125.	<p><b>VOELKEL Konrad</b>            Research Field : <b>ALGEBRAIC GEOMETRY</b>             Research Topic : <b>A<sup>1</sup>-HOMOTOPY THEORY</b>             Permanent Institute:            Mathematisches Institut der Universitaet Freiburg            Section of Pure Mathematics            Guntramstrasse 30            79106 Freiburg Im Breisgau            GERMANY            Permanent Institute e mail konrad.voelkel@merkur.uni-freiburg.de</p>	GERMANY	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
126.	<b>WANG Yue</b>  Research Field : <b>MATHEMATICS</b>  Research Topic : <b>DIFFERENTIAL GEOMETRY;DIFFERENTIAL EQUATIONS</b>  Permanent Institute: China Jiliang University Department of Mathematics Xueyuan Street, Xiasha Hangzhou 310018 PEOPLE'S REPUBLIC OF CHINA Permanent Institute e mail kellywong@cjlu.edu.cn	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>
127.	<b>YIN Qizheng</b>  Research Field : <b>COMPLEX ALGEBRAIC GEOMETRY</b>  Research Topic : <b>HODGE THEORY; THEORY OF ALGEBRAIC CYCLES</b>  Permanent Institute: Departement de Mathematiques et Applications Ecole Normale Superieure de Paris 45 Rue d'Ulm 75005 Paris FRANCE Permanent Institute e mail qizheng.yin@ens.fr	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>
128.	<b>ZHANG Lei</b>  Research Field : <b>ALGEBRAIC GEOMETRY</b>  Research Topic : <b>HOMOTOPY EXACT SEQUENCE OF FUNDAMENTAL GROUP</b>  Permanent Institute: Universitaet Duisburg-Essen- Mathematik- Campus Essen- Esnault-Viehweg research group Universitätsstraße 2 45117 Essen North Rhein GERMANY Permanent Institute e mail cumt559@gmail.com	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>

No.	NAME and INSTITUTE	Nationality	Function
129.	<b>ZHANG Yongsheng</b>	PEOPLE'S REPUBLIC OF CHINA	<b>PARTICIPANT</b>
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	Research Topic : <b>SEIBERG WITTEN INVARIANT, ALGEBRAIC SURFACES</b>		
	Permanent Institute:		
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