

# WORKSHOP ON ALGEBRA, GEOMETRY AND ALGORITHMS FOR YOUNG MATHEMATICIANS IN AFRICA

20 - 27 February 2005

Université Abdou Moumouni, Niamey, Niger

The Abdus Salam International Centre for Theoretical Physics (ICTP) is sponsoring a Workshop on **Algebra, Geometry and Algorithms for young mathematicians from Africa** from 20 to 27 February 2005, to be held at the Université Abdou Moumouni, Niamey, Niger. It will be directed by Fabrizio Broglia (Italy), Warou Harouna (Niger) and Marie Françoise Roy (France).

The workshop is a follow-up of the School on Real Algebraic Geometry and Applications organized in August 2003 at ICTP, when the african network of algebra and geometry applied to development (RAAGAD) was created. This network supports doctoral studies in Niamey (Niger) starting in October 2004 and the workshop is part of this program. The aim is to allow coadvisors to come to Niamey and present the subject of projects suggested to students. These advisors will organize the work of students during their projects. Each student will be simultaneously advised by an African tutor. Since there are very few bibliographical resources available in Niamey, it will be very useful that lecturers bring adapted documentation for the students.

The **topics** of the workshop will be: effective commutative algebra, algebraic geometry, real algebraic geometry, including algorithms, applications and use of computer algebra systems.

## Main Speakers and topics of the lectures

A. Jounaïdi (ESSTT, Tunis, Tunisie)	<i>Algorithms of linear Algebra</i>
A. Szpirglas (Université de Poitiers, France)	<i>Toric Varieties</i>
D. Sangaré (Cocody University, Ivory Coast)	<i>Commutative Algebra and Algebraic Geometry</i>
F. Rouiller (INRIA, France)	<i>Polynomial systems solving</i>
F. Broglia (Università di Pisa, Italy)	<i>Real Algebraic Geometry</i>
F. Acquitapasce (Università di Pisa, Italy)	<i>Sums of squares</i>
G. Belko (Université de Niamey, Niger)	<i>Analytic Geometry</i>
G. Kientéga (Université de Ouagadougou, Burkina)	<i>Number theory</i>
H. Lombardi (Université de Franche Comté, France)	<i>Constructive theory of dimension</i>
I. Katambé (Université de Niamey, Niger)	<i>Genetic Algebra</i>
J. Yameogo (Université de Nice, France)	<i>Geometry of punctual Hilbert schemes</i>
K. Samaké (Université de Bamako, Mali)	<i>Number theory</i>
L. Gonzalez Vega (Universidad de Cantabria, Spain)	<i>Computer Aided Geometric Design</i>
L. Göttsche (ICTP, Trieste, Italy)	<i>Moduli spaces and Hilbert schemes</i>
M. Bazanfaré (Université de Niamey, Niger)	<i>Riemannian Geometry</i>
M.-F. Roy (Université de Rennes 1, France)	<i>Algorithms in Real Algebraic Geometry</i>
M. Coste (Université de Rennes 1, France)	<i>Tropical Geometry</i>
M. El Kahoui (Université Caddi Ayyad, Morocco)	<i>Application of Algebra to control theory</i>
M. Bangoura (Université de Conakry, Guinée)	<i>Poisson structures</i>
O. Sall (Université Cheik Anta Diop, Sénégal)	<i>Algebraic Geometry on finite fields</i>
S. Laballah (Université Caddi Ayyad, Morocco)	<i>Complexity of Algorithms</i>
W. Harouna (Université de Niamey, Niger)	<i>Algorithms of Real Algebraic Geometry</i>

about 20 lectures from advanced researchers presenting recent advances and current research.

Mathematicians from all African countries that are members of the United Nations, UNESCO or IAEA may attend the activity. As the activity will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants should be borne by their home institutions. Every effort should be made by candidates to secure support for their fare (or at least half-fare) from their home country. However, limited funds are available for some participants from and working in a developing country, and who are not more than 45 years old, to be selected by the Organizers. There is no registration fee.

**The closing date for the receipt of requests for participation is 15 December 2004**

The applications should be sent by email to [marie-francoise.roy@univ-rennes1.fr](mailto:marie-francoise.roy@univ-rennes1.fr) and [hwarou@yahoo.fr](mailto:hwarou@yahoo.fr) or by ordinary mail to

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and

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## ORGANIZERS

**F. Broglia**  
*Pisa, Italy*

**W. Harouna**  
*Niamey, Niger*

**M.-F. Roy**  
*Rennes, France*

## DEADLINE

*for receipt of applications:*

**15 December 2004**