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In 2005,

The CIMPA Center (France) and
University Center of El-Oued (Algeria),

in cooperation with

ENS-Kouba (Algiers, Algeria),

ORGANIZE a

CIMPA-UNESCO-ALGERIA School entitled

« **Riemannian and Pseudo-Riemannian
Geometries and Dynamics, and
Applications** »

Objectives :

The aim of the school is to provide a thorough description of the interactions between geometry (with its different branches) and dynamical systems, in one part, and between these two disciplines and different extra-mathematics areas of research (General Relativity, Cosmology, Black Holes,), in another part. A pedagogical treatment of the subjects, at both introductory and advanced levels, will be provided in the form of a series of lectures by individual speakers, ranging from evolutions of the subject to the most recent developments.

One of the motivations of the school is to present new ways of teaching and working on these subjects, at the regional level. We will try to gather as much as possible people working and interested in the subjects. An effort will be made to convince the participants of the importance and the beauty of this mathematics. At this level special attention will be given to young graduate students, who will find some mini-courses as a sort of graduate courses.

Although the school is open to all graduate students and researchers in Mathematics and Theoretical Physics, a minimum knowledge of differential geometry is required. To insure maximum benefit we will put on the school home page, details and some documentation helping to anticipate and discover the main items of the school.

Speakers:

1. T. Barbot (CNRS, ENS-Lyon, France)
2. G. Besson (CNRS, Institute Joseph Fourier, Grenoble, France)
3. D. Dou (University Center of El-Oued, Algeria)
4. E. Ghys (CNRS, ENS-Lyon, France)
5. J.M. Morvan (Lyon I University France)
6. P. Pansu (Paris XI University, France)
7. T. Sari (Mulhouse University, France)
8. R. Souam (CNRS, Paris VII, France)
9. A. Zeghib (CNRS, ENS-Lyon, France)

Scientific programme:

1. Riemann surfaces and Hyperbolic geometry
2. Perelman work on the Ricci flow (Poincaré conjecture)
3. Minimal surfaces in Riemannian and Lorentz Geometries
4. Foundations of Dynamical Systems
5. Einstein's Equation in General Relativity
6. Dynamical Systems and Cosmology
7. Geometric structures and black holes
8. Geometry of submanifolds and Imaging

Prerequisites:

Graduate students (Magister, Master, Ph.D.) and interested researchers

Working languages:

French, English

Date and venue:

February 26-March 10 2005, University Center of El-Oued (Algeria)

Deadline for registration:

November 15, 2004

Scientific directors and organizers:

- S. Djebali (ENS-Kouba, Algiers, Algeria)
D. Dou (University Center of El-Oued, Algeria)
K. Sadallah (ENS-Kouba, Algiers, Algeria)
A. Zeghib (CNRS, ENS-Lyon, France)

Those interested should apply to cimpa5-eloued@wissal.dz or to cimpa@unice.fr
Web sites: <http://math-adrar.ujf-grenoble.fr/CIMPA/Francais/Prog2005/Algerie05.html>
or <http://www.umpa.ens-lyon.fr/~zeghib/CIMPA>