

Newsletter No. 2
of the
European RTN Network RAAG
Contract No. HPRN-CT-2001-00271
May 1, 2002

Through a contract with the Universität Passau in Germany, the European Community has established the Research Training Network RAAG (Real Algebraic and Analytic Geometry). This bi-monthly newsletter, to be distributed among the Network researchers and other interested mathematicians by e-mail, will inform about the activities and the progress of the Network. Further information about the Network, and about RAAG in general, may be found on the Network's website at

<http://www.ihp-raag.org/>

The Network RAAG is part of the European IHP programme (Improving the Human Research Potential). General information about this programme and about RTN networks is available at

<http://www.cordis.lu/improving/home.html>

The website

<http://improving.cordis.lu/rtn/>

offers short presentations of the different networks supported by the European Community.

Management of the Network

The College of Coordinators met on March 19 in Oberwolfach to discuss the organization and management of the Network. Items that were discussed include the Network's website, the appointment of young researchers, the Network budget and the calendar of Network meetings.

The next meeting of the Coordinators will take place during the conference RAAG 2002 in Kazimierz Dolny, Poland.

The Network is run by Niels Schwartz in Passau, Germany, with the help of Andreas Fischer and Nicole Schröter. Andreas Fischer's responsibilities include the organization of Network meetings. Nicole Schröter takes care of much of the everyday business connected with the Network.

The first Newsletter contained a list of organizational tasks and persons who are responsible for these tasks. The list was incomplete: a deputy for the task "Liaison with industry" was still missing. This slot has now been filled by Fabrice Rouillier (Fabrice.Rouillier@loria.fr).

The website

The Network's website is currently being developed under the responsibility of Frederic Mangolte (Frederic.Mangolte@univ-savoie.fr). Both the content and the design of the website are evolving constantly. Everybody should take a look from time to time. Criticism and suggestions concerning all aspects of the website are invited.

Young researchers

Markus Schweighofer finished his doctoral degree at the Universität Konstanz. His thesis has the title "Iterated rings of bounded elements and generalizations of Schmüdgen's theorem" (Advisor: Alex Prestel).

Riccardo Ghiloni finished his PhD in Pisa. The title of his thesis is "Algebraic structures on polyhedra" (Advisor: Alberto Tognoli)

Training and appointments

Current appointments:

José F. Fernando from the Universidad Complutense, Madrid, does post-doctoral work with Claus Scheiderer in Duisburg, from March 1 to August 31, 2002.

Future appointments: Four positions for young researchers are available within the next few months; it is expected that more vacancies can be added to this list in the near future. Vacancies are usually advertised on the EC's CORDIS server at <http://improving.cordis.lu/rtn/>, in this Newsletter and on the Network's website at <http://www.ihp-raag.org/>.

1. A pre-doctoral position in the area of Real Algebraic and Analytic Geometry. Candidates must have a strong background in Real Geometry, Algebraic and Differential Topology. The successful candidate will work under the supervision of Prof. Dr. J. Bochnak.

Applications should be sent to Prof. Bochnak by June 1, 2002

Start Date : 01/09/2002

Duration: 12 months

Contact Person

Prof. Dr. J. Bochnak

Vrije Universiteit

Faculteit der Exacte Wetenschappen

De Boelelaan 1081 A

1081 HV Amsterdam

The Netherlands

E-Mail: bochnak@cs.vu.nl

2. A post-doctoral position in Real algebraic and Analytic Geometry. Candidates must have a strong background in Real Geometry, Algebraic and Differential Topology. The successful candidate will work under the supervision of Prof. Dr. J. Bochnak.

Applications should be sent to Prof. Bochnak by July 1, 2002

Start Date: 01/01/2003

Duration: 7 months

Contact Person

Prof. Dr. J. Bochnak

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3. A post-doc position in the Network "Real algebraic and Analytic Geometry (RAAG)". The successful candidate is expected to work in the research group "Real algebraic geometry, symbolic computation and complexity" at the IRMAR. He or she will assist Prof. Coste with the publication of a series of state-of-the-art electronic documents on various topics in RAAG.

Applications are invited until June 1, 2002

Start Date: 01/09/2002

Duration: 12 months

Contact Person:

Prof. Michel Coste

Institut de Recherche Mathématique de Rennes

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France
E-Mail: Michel.Coste@univ-rennes1.fr

4. A post-doc position in the Network "Real Algebraic and Analytic Geometry (RAAG)". Candidates are expected to work with Alex Wilkie about model theoretic methods in the geometry of o-minimal structures.
Applications are invited until June 1, 2002
Start Date: 01/10/2002
Duration: 8 months

Contact Person
Alex Wilkie
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Oxford, OX13LB
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Research and publications

- A monograph by Manfred Knebusch and Digen Zhang with the title "Manis valuations and Prüfer extensions I" will appear in the Springer Lecture Notes Series
- Thomas Sturm has written a technical report with the title "Quantifier Elimination-based Constraint Logic Programming" (see at <http://www.fmi.uni-passau.de/forschung/mip-berichte/MIP-0202.html>), he will lecture about this topic at the conference Calculemus 2002.
- At the conference ACA 2002 Thomas Sturm organizes a section about "Computational Quantifier Elimination".
- James Davenport, Russel Bradford and Daniel Richardson will give papers at the conference ISSAC 2002 in Lille, July 8 – 10, 2002
- Alex Wilkie gave a colloquium talk entitled "o-minimality" at the opening of the new Graduate Center in Bonn
- Several new items have been placed on the preprint server, which can be reached via the Network's website.

Network meetings

Currently the following meetings have been approved by the Coordinators as official Network meetings:

1. A series of workshops and schools about the topic **Computations in Real Algebraic Geometry and its Applications**
 - Internal workshop "Computations in Real Algebraic Geometry and its Applications" (site: Santander; dates: 13.6. – 15.6.02; organizers: Andradas, Gonzalez-Vega, Rouillier, Roy)

Sections of the workshop:

 - Curves and surfaces
 - Robotics
 - Optimization

Intended audience: members of the Network

The workshop will provide answers to the following questions:

 - What is computing in Real Algebraic Geometry?
 - What software is currently available?
 - What applications are being considered?

Special activity: Visit of the company CANDEMAT

The **Announcement** of this meeting has been sent to all Network researchers by e-mail and is being posted on the Network's website (<http://www.ihp-raag.org/>).
 - Summer school in 2003 (June 30 – July 5)

Structure of the school:

 - lectures on algorithms and their application
 - practical demonstrations by lecturers
 - practical sessions for the participants

Intended audience: Participants (at most 20) of the internal workshop (of 2002) with a deeper interest in computing in Real Algebraic geometry for industrial applications

Purpose: Provide a group of Network scientists with the expertise actually to use algorithmic methods from Real Algebraic Geometry
 - Workshop (one or two days, in conjunction with the general conference RAAG 2005)

Intended audience: members of the Network

Purpose:

Presentation of the results of the earlier activities

Evaluation of the applicability of algorithms from Real Algebraic Geometry (by users, in particular from industry)
2. Annual general conference **RAAG 2002** in Kazimierz Dolny, Poland, Sept. 22 – Sept. 26, 2002

A **First Announcement** has been sent to real geometers worldwide by e-mail and is being posted on the Network's website (<http://www.ihp-raag.org/>).
3. A school about the topic **Spaces of arcs, motivic integration, arc-symmetric sets, blow-analytic equivalence, real algebraic and analytic sets**

Organizers: Coste, Kurdyka, Parusinski

Location and dates: Aussois (Savoie), January 6 – 12, 2003

Topics and lecturers:

- M. Coste: real algebraic sets
- F. Loeser: motivic integration
- K. Kurdyka, A. Parusinski: arc-symmetric sets and blow-analytic equivalence

4. Annual general conference **RAAG 2003** in Spain
Organizers: Andradas, the Network Coordinators, and others
5. Annual general conference **RAAG 2004** in Italy
Organizers: Broglia, The Network Coordinators, and others
6. Annual general conference **RAAG 2005** in Germany
Organizers: Schwartz, the Network Coordinators, and others

Other plans for meetings in 2003 are currently being discussed by the Coordinators.