2008 MAP Summer School at Trieste-ICTP

Presentation

January 2008

1 Introduction.

The Trieste-Ictp (International Center for Theoretical Physics) has accepted the project of an Ictp-Map-Summer School in August 2008.

MAP = Mathematics, Algorithms and Proofs. The members of the MAP Club are mainly interested by the recent evolution of some parts of Mathematics which involve simultaneously standard Mathematics, Logic, theoretical and concrete Computer Science.

The MAP Club has been created in a meeting at Dagstuhl in January 2003. This scientific group regularly organizes scientific meetings around his favourite themes. Usually Tutorial Sessions and Summer Schools are mixed with more common invited talks and communications. The last MAP meeting took place at Leiden (Netherlands) in January 2007.

2 The MAP Club.

The manifesto of the MAP club can be read at[1]:

`http://www.disi.unige.it/map/index.php?q=manifesto`

See also:

`http://www.lc.leidenuniv.nl/lc/web/2007/229/description.php3?wsid=229`

It is there briefly explained how rich and complex are the interconnections between:

1. Practically any field in Mathematics;
2. The various Logics, in particular the so-called Constructive Logic;

[1]The quoted urls can be directly used from the electronic pdf.

3. Theoretical and/or concrete Computer Science.

The items 2 and 3 characterize the scientific style of the MAP members; they are always and firstly *ordinary* mathematicians, but they are also particularly mindful of possible and in fact frequent natural connections with modern Logic and Computer Science. It is striking to observe how in the MAP meetings, colleagues specialized in *different* domains in Mathematics find fruitful the discussions between each other when they are confronted to somewhat similar problems in Logic and/or Computer Science. This experimental fact gives a *multidisciplinary* flavour to our meetings, without any equivalent in traditional mathematical meetings.

A list of the current MAP participants is at:

`http://www.disi.unige.it/map/index.php?q=accueil`

To quickly have a rough idea of our common activities, the site about our last Summer-School (Genova, August-September 2007) is:

`http://map.disi.unige.it/summer_school/index.php?page=2`

and the site about our last Meeting (Leiden, January 2007):

`http://www.lc.leidenuniv.nl/lc/web/2007/229/extra.php3?wsid=229`

3 The planned Summer School.

The Summer School is three-week long: August 11-29, 2008. Weeks 1 and 2 are devoted to the Summer School itself, Week-3 being rather a standard meeting with talks by various researchers.

The *Scientific Committee* is made of four "Directors" (Ictp terminology):

- Thierry Coquand (Chalmers University).
- Alicia Dickenstein (University of Buenos Aires).
- Tornike Kadeishvili (University of Tbilisi).
- Francis Sergeraert (Institut Fourier, Grenoble).

Lecture program:

- A = B (Peter Paule, Linz).
- Algorithms and Algebraic Geometry (Gert-Martin Greuel, Kaiserslautern).
- Computational Algebra (Teo Mora, Genova).
- Constructive Algebra (Ihsen Yengui, Sfax).
- Constructive Analysis (Douglas Bridges, Canterbury).
- Constructive Logic (Thierry Coquand, Chalmers).
- Effective Arithmetic and Motives (Alexei Pantchichkine, Grenoble).
- Groebner Basis (Jean-Charles Faugère, INRIA).

- Introduction to Combinatorial Homotopy (Francis Sergeraert, Grenoble).
- Operadic Algebraic Topology (Tornike Kadeishvili, Tbilisi).
- Point Free Topology (Erik Palmgren, Uppsala).

The *Organization* of this Summer School is done in agreement witht the current *Board of the MAP Club*:

- Thierry Coquand (Chalmers University).
- Alicia Dickenstein (University of Buenos Aires).
- Tornike Kadeishvili (University of Tbilisi).
- Henri Lombardi (University of Besançon).
- Giuseppe Rosolini (University of Genova).
- Marie-Françoise Roy (University of Rennes).
- Helmut Schwichtenberg (University of München).
- Peter Schuster (University of München).
- Francis Sergeraert (Institut Fourier, Grenoble).

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