10 years of DIMATIA

DIMATIA Annual Report
2005

DIMATIA

(prepared by J. Foniok and J. Nešetřil)

Contents

1. Introduction

DIMATIA, The Center for Discrete Mathematics, Theoretical Computer Science and Applications, was established in 1996 to meet the increasing needs of the European scientific community in the given branches of mathematics and computer science. The centre is modelled after DIMACS centre (a joint venture of Rutgers and Princeton Universities and Bell Labs).

The purpose of the centre is to foster research in all fields of discrete mathematics and its modern applications and relationship to computer science, operations research and fields as diverse as biology, chemistry and social sciences. Towards this end the centre organizes a continuing program of workshops, conferences and research visits both in Prague and all sites of participating institutions. The activity of the centre concentrates in the following directions: research workshops and conferences, postdoctoral positions announced and supported jointly with our participating institutions, and short-term visits of senior researchers.

The centre is supported by all the participating institutions and cooperates with local and international grants of the participating sites (such as EU RTN COMBSTRU and REU grant of DIMACS-DIMATIA).

This report reflects mostly organization and scientific activities of the central Prague group in 2005. Other activities are reported on the participating institutions.

During the 10 years of its existence, DIMATIA organized many workshops and conferences, supported visits, research stays and participation at conferences. In many cases it helped to provide organization and support when no other sources were available. DIMATIA also provided a vital link to ITI and other European and international organizations.

We hope that some of its achievements (such as the EUROCOMB conferences and the European Prize in Combinatorics) will have a lasting effect.

DIMATIA is the backbone of our international collaborations which can serve permanently, even in times when our individual or collective grants expire. On the other hand, the synergy which DIMATIA generated (and generates) has proved to be useful also when applying for various local and international grants.

2. Members of DIMATIA

DIMATIA was founded in 1996 as a joint project of the *Faculty of Mathematics and Physics of the Charles University* (J. Nešetřil, J. Kratochvíl), the *Academy of Sciences of the Czech Republic* (P. Pudlák), and the *Institute of Chemical Technology, Prague* (P. Turzík).

DIMATIA's web page: `http://dimatia.mff.cuni.cz/` (currently administrated by J. Foniok).

The secretary of DIMATIA is H. Polišenská.

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The associate members of DIMATIA are (we list also contact persons – site organizers):

Forschungsinstitut für diskrete Mathematik, Institut für Ökonometrie und Operations Research, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany (since 1996; B. Korte).
`http://www.ect.uni-bonn.de/`
`http://www.or.uni-bonn.de/`

LaBRI, Institut Universitaire de Technologie, Université Bordeaux I, France (since 1997; A. Raspaud).
`http://www.labri.fr/`

MTAMKI, Mathematical Institute of the Hungarian Academy of Sciences, Budapest, Hungary (since 1997; E. Győri, G. Katona).
`http://www.renyi.hu/`

Sobolev Institute of Mathematics, Siberian Branch of the Russian Academy of Sciences, Novosibirsk Akademgorodok, Russia (since 1997; S. Bereznev).
`http://www.math.nsc.ru/`

IIT, Instituto di Informatica e Telematica, CNR, Pisa, Italy (since 1998; B. Codenotti, M. Pellegrini).
`http://www.iit.cnr.it/`

CTI, Computer Technology Institute, Patras, Greece (since 1999; P. Spirakis, S. Nicolatseu).
`http://www.cti.gr/`

Fakulta aplikovaných věd, Západočeská univerzita v Plzni, Faculty of Applied Sciences of University of West Bohemia, Plzeň, Czech Republic (since 1999; Z. Ryjáček).
`http://www.fav.zcu.cz/`

Universitat Politècnica de Catalunya, Barcelona, Spain (since 1999; J. Díaz, O. Serra).
`http://www.upc.es/`

Institutt for informatikk, Universitetet i Bergen, Department of Computer Science, University of Bergen, Norway (since 2004; J. A. Telle).
`http://www.ii.uib.no/`

DIMACS, Center for Discrete Mathematics and Theoretical Computer Science, New Jersey, USA (since 1996; F. Robers).
`http://dimacs.rutgers.edu/`

The Pacific Institute for the Mathematical Sciences, Canada (since 1996; P. Hell).
`http://www.pims.math.ca/`

In 2005, the network of DIMATIA partners was joined by the *University of Durham*, Department of Computer Science. There are two research groupings in the Department, *Algorithms and Complexity* and *Software*, each consisting of different, though cognate, research groups. The Department also plays the lead role in the e-Science Research Institute at Durham. (I. Stewart, H. Broersma)
`http://www.dur.ac.uk/CompSci/`

The total number of cooperating institutions has thus reached 16.

3. Conferences and Workshops

We list some of the activities which were organized, coorganized and/or supported by DIMATIA.

Doccourse

The *Doccourse Prague 2005* was organized from January to March 2005 in cooperation with the EU research network COMBSTRU. The scientific programme consisted of a series of lectures on *Modern Methods in Ramsey Theory*. On the whole, 10 lectures of 180 minutes each were given by Ehud Friedgut (Jerusalem), Vojtěch Rödl (Emory, Atlanta) and Mathias Schacht (Humboldt University, Berlin). These lectures were complemented by exercise and problem solving sessions.

Complementary lectures on topics related to Ramsey Theory were additionally given by Joshua Cooper, Ben Green, Jiří Matoušek, Jaroslav Nešetřil, Miklos Ruszinko, Miklos Simonovits, Vera T. Sós, Joel Spencer, and Pavel Valtr.

A total number of 17 participants attended the full programme of the Doccourse. Besides taking an examination on the material covered by the lectures, the participants worked in groups on projects, committing a project report at the end of the Doccourse.

XML Prague 2005

XML Prague is a regular conference on XML for developers, web designers, information managers, and students, focusing this year on XML Native Databases and Querying XML. It was held on June 17–18 in Prague.

Midsummer combinatorial workshop

The *Twelfth Midsummer Combinatorial Workshop* was organized in Prague on July 25–29. It was oriented on problems of all fields of graph theory, combinatorics and discrete geometry, and it continued in the spirit and informal working atmosphere of the previous meetings.

The workshop had more than 60 participants.

Workshop on Extremal Combinatorics

The *Workshop on Extremal Combinatorics* was organized in Prague on July 30–August 1 in the framework of DIMACS-DIMATIA-Rényi tripartite cooperation supported by national grants and the NSF. The central two subjects of the workshop were extremal graph theory and extremal problems arising from combinatorial search and testing.

EuroComb 2005

EuroComb'05 took place at Technische Universität Berlin on September 5–9. In the tradition of EuroComb01 (Barcelona) and EuroComb03 (Prague), this conference covered the full range of Combinatorics and Graph Theory including applications in other areas of Mathematics, Computer Science and Engineering.

Invited lectures were given by Ron Aharoni (Technion, Haifa), Mireille Bousquet-Mélou (LaBRI, Bordeaux), Hein van der Holst (TU, Eindhoven), Nati Linial (Hebrew University, Jerusalem), László Lovász (Eötvös University and Microsoft Research), Bruce Reed (McGill, Montreal), Alexander Schrijver (CWI, Amsterdam), Madhu Sudan (MIT, Cambridge), Gábor Tardos (Renyi, Budapest) and Günter M. Ziegler (TU Berlin).

In addition, about 80 contributed talks were given.

Advanced Course on Recent Trends of Combinatorics in the Mathematical Context

This course, taking place on September 13–23 at the CRM Barcelona in Bellaterra, Spain, consisted of two series of lectures: *Random Graphs* lectured by Béla Bollobás and *Combinatorics of morphisms* by Jaroslav Nešetřil. In the afternoons, lectures were followed by problem solving sessions. The course was followed by almost 60 participants.

Workshop on Graphs, Morphisms and Applications

The workshop was organized on September 27–30 at the CRM in Bellaterra, Spain. More than 20 talks were given; the proceedings are due to appear as a special volume of the European Journal of Combinatorics.

School on Physics and Computer Science

The school, held on October 17–29 in Cargèse, France, assembled theoretical physicists and specialists of theoretical informatics and discrete mathematics in order to learn more about recent developments in cryptography, algorithmics, symbolic calculus, non-standard numeration methods, algebraic combinatorics and automata. These areas have proved to be of crucial interest in natural sciences. Specialists in various areas of physics had the opportunity to describe aspects of their research in which new approaches imported from computer sciences are particularly needed.

Workshop on Graph Classes, Width Parameters and Optimization

The workshop was the second meeting of *Workshop on Optimization Problems, Graph Classes and Width Parameters* originally arranged at Centre de Recerca Matematica, Bellaterra, Spain in November 2001. This year's meeting took place in Prague on October 17–19.

Optimization problems on graphs are often expressed in some formalism: logic, algebra, graph rewriting. Sometimes, such formalisms have corresponding classes of graphs for which these problems are efficiently solvable even if intractable in general. Examples of such graph classes are those with bounded "width" parameters: the pre classical bandwidth, classical treewidth and pathwidth, fairly recent branchwidth, and cliquewidth. Often, classes of graphs defined by some structural properties have bounded width parameter values. Exploring these interplay of problems, graphs and width was the main theme of the workshop.

The invited lectures were given by Maria Chudnovsky (Princeton/CMI) on The structure of claw-free graphs, Takao Nishizeki (Tohoku) on Partitioning Graphs of Supply and Demand, and Dimitrios Thilikos (Barcelona) on Layout problems and related width parameters. Twenty other talks were given by the participants; the total number of participants was 40.

Integers Conference 2005

The *Integers Conference 2005* was organized at the University of West Georgia in Carrollton. It had special significance as it was held in honour of Ron Graham, on the occasion of his 70th birthday. The Integers conferences are international conferences in combinatorial number theory, held for the purpose of bringing together mathematicians, students, and others interested in combinatorics and number theory.

The plenary lectures were given by Daniel Goldston, Neil Hindman, Jozsef Solymosi and Doron Zeilberger.

Working Group on Algebraic and Geometric Methods in Combinatorics

The *DIMACS/DIMATIA/Rényi Working Group on Algebraic and Geometric Methods in Combinatorics* third meeting was held at the DI-

MACS centre, Rutgers University, on November 7–9. Among the topics covered by the workshop were algebraic methods, problems of combinatorial geometry and application of algebraic geometry.

Homonolo'05

HOMONOLO'05 – Workshop on graph homomorphisms and related topics took place at Nová Louka on November 14–18. The workshop continued the tradition started at Nová Louka in late autumn 2000. The workshop was devoted to structural properties, algebraic aspects, algorithmic complexity and other aspects of graph homomorphisms and related topics.

4. Mathematical Colloquia

DIMATIA in cooperation with the Department of Applied Mathematics of the Charles University and the Institute of Theoretical Computer Science organizes a distinguished series of talks under the common title *Mathematical Colloquia*. The first colloquium was held in 1987 and the original motivation was to enrich the mathematical life in Prague by inviting some of the key mathematicians and computer scientists of our time.

The lectures are widely advertised and usually attract a large audience not only from Prague but also from Bohemia, Moravia and even Slovakia. The past Colloquia lectures covered most of the branches of mathematics (mathematical analysis, geometry, algebra, number theory, combinatorics, set theory, functional analysis, mathematical physics, probability and theoretical computer science and applications).

2005 was a very busy year for Mathematical Colloquia, usually held at a frequency of about 2–3 Colloquia per year. In 2005, we organized five Colloquia.

52nd Colloquium: Michele Emmer

Michele Emmer, is a professor of mathematics at the University of Rome "La Sapienza". He was previously a professor at the University of Ferrara, Trento, Viterbo, L'Aquila, Sassari, Venice and a visiting professor, among others, at Princeton, Paris Orasy, Campinas Barcelona and at several Japanese universities. His area of activity were partial differential equations and minimal surfaces. For three years, he was the president of the Italian associations for scientific media, part of the European association *Media in Science*. He is also a filmmaker; almost all his movies in the series *Art and Math* have been televised by the State Italian TV and other companies.

He has organized several exhibitions and conferences on the topic of *Art and Mathematics* including the annual conference on *Mathematics and Culture* at the University of Venice; the exhibitions and conferences on M.C. Escher (1985 and 1998) at the University of Rome; the section on Space at the Biennal of Venice (1986).

On 14 January 2005, Michele Emmer gave a Colloquium lecture on *Mathematics and culture*.

53rd Colloquium: Ehud Friedgut

Ehud Friedgut completed his undergraduate studies in Tel Aviv where he decided to become a combinatorist after hearing a course about the probabilistic method from Noga Alon. He went on to graduate in 1997 from the Hebrew University of Jerusalem under the supervision of Gil Kalai. His Ph.D. thesis, which won several awards, such as the *Nisiyahu prize* for the best Math Ph.D. thesis in Israel, is one of the main contributions to the understanding of threshold phenomena in random structures. After postdoc periods in the Institute for Advanced Study in Princeton and U.C. Berkeley he returned to the Hebrew University where he is currently a faculty member. His main interests are probabilistic combinatorics and discrete harmonic analysis. In July 2004 he gave an invited talk at the European Congress of Mathematics where he presented work similar to that which he described at our colloquium.

On 2 February 2005, Ehud Friedgut gave a Colloquium lecture on *Some applications of Fourier analysis in combinatorics*.

54th Colloquium: Ben Green

Ben Green graduated from the Trinity College, University of Cambridge in the UK (1995-1999). His doctoral studies, supervised by I. Gowers, ended in 2002 with the thesis *Topics in arithmetic combinatorics*. He has held post-doc positions at the Rényi Institute in Budapest and at PIMS in Vancouver. Since 2005, he has been a professor of mathematics at the University of Bristol. For his exceptional results in prime number theory and arithmetic combinatorics, he has been awarded the Clay Research Award, the Whitehead Prize of the London Mathematical Society, the Salem Prize.

Ben Green's extraordinary result is his joint work with T. Tao of spring 2004, in which they proved the existence of arbitrarily long arithmetic progressions of prime numbers.

Ben Green gave two Colloquium lectures on the topic; *Arithmetic progressions in the primes* on 9 February 2005 and *The Gowers U^3-norm and its applications* on 10 February 2005.

55th Colloquium: Miklós Simonovits

Miklós Simonovits, a leading scientist of the Alfréd Rényi Institute of the Hungarian Academy of Sciences in Budapest and a professor of the Eötvös Loránd University, is one of Hungary's most famous mathematicians. A long-time co-worker and friend of P. Erdős, he is the author of many results and open problems in combinatorics, graph theory and combinatorial number theory. He is an outstanding expert on extremal theory, currently a rapidly developing field of combinatorics.

On 23 February 2005, Miklós Simonovits gave a Colloquium lecture on *Turán problems, Ramsey problems, simple and random-looking extremal structures*.

56th Colloquium: Klaus Schmidt

Klaus Schmidt is a professor of mathematics at the University of Vienna. He studied in Vienna (supervised by E. Hlawka) and later worked as a professor at the University of Warwick. Afterwards, he became the president of the Erwin Schrödinger International Institute for Mathematical Physics. He is a member of the Austrian Academy of Sciences. He is a renowned teacher with a large number of successful doctoral students. His scientific works include mathematical analysis, probability theory and in particular ergodic theory. He has published more than 80 scientific works, of which *Dynamical systems of algebraic origin* won the *Ferran Sunyer i Balaguer* prize.

On 26 May 2005, Klaus Schmidt gave a Colloquium lecture on *Dynamical systems arising from algebra*.

5. Visitors

In 2005, DIMATIA in Prague supported (sometimes partially in collaboration with other grants) the stay of the following 77 visitors:

Bernhard Banaschewski	4 Jun – 16 Jun
Arthur Barkhudaryan	2 Jun – 16 Jun
Katja Berčic	31 Jul – 8 Aug
Sarah Bleiler	23 Jul – 10 Aug
Julia Böttcher	5 Jan – 31 Mar
Craig Bowles	23 Jul – 10 Aug
Henning Bruhn	5 Jan – 31 Mar
Joshua Cooper	14 Feb – 20 Feb
Anna de Mier	9 Oct – 31 Dec
DeHaro	6 Feb – 13 Feb
Pierre Dehornoy	5 Sep – 15 Oct
Michel Emmer	12 Jan – 16 Jan
Adil Erzin	1 Jan – 22 Feb
Babah Farzal	23 Jul – 30 Jul
Ehud Friedgut	23 Jan – 13 Feb
Tobias Gerken	21 Jul – 2 Aug, 1 Nov – 31 Dec
Christis Ghantsidis	11 Nov – 14 Nov
Omer Gimenez	5 Dec – 12 Dec
Ben Green	8 Feb – 11 Feb
Will Hasenplaugh	28 Oct –
Pavol Hell	11 May – 25 May
Dolors Herbera	26 May – 29 May
Chiavaro	6 Feb – 20 Feb
Lina Jansson	5 Jan – 31 Mar
Veso Jungič	5 Feb – 18 Feb
Mihyun Kang	20 Mar – 25 Mar, 12 Jun – 19 Jun, 24 Jul – 3 Aug
Marcos Kiwi	17 Jul – 27 Jul
Christian Krattenthaler	5 Jan – 10 Jan
Sivarama Krishan	5 Jan – 31 Mar
Nina Lehman	8 Oct – 11 Oct
Anna Llado	1 Jan – 15 Feb
Stephan Mertens	13 Dec – 18 Dec
Jozef Miskuf	6 Aug – 14 Aug

Melissa Mitchell	23 Jul – 10 Aug
Iain Moffat	24 Apr – 30 Apr, 7 Jun – 31 Dec
Jordi Moragas	24 Jan – 28 Feb
Samuel Nelson	23 Jul – 10 Aug
Yared Nigoussie	19 Mar – 27 Mar, 20 Jun – 20 Sep
Žiga Novšak	31 Jul – 8 Aug
Marc Noy	26 May – 29 May
Pascal Ochem	5 Jan – 31 Mar
Patrice Ossona de Mendez	27 Jul – 14 Aug
Marco Pellegrini	23 Jul – 31 Jul
Richard Pollack	16 Oct – 21 Oct
Lara Pudwell	23 Jul – 10 Aug
Laurence Rackham	5 Jan – 31 Mar
Matthieu Raffinot	16 Oct – 23 Oct
Vojtěch Rödl	6 Feb – 20 Feb
Moshe Rosenfeld	16 Jun – 23 Jun
Miklos Ruczinko	22 Feb – 27 Feb
Fernando Sasse	21 Jan – 13 Feb
J. S. Sermi	26 Sep – 1 Oct
Oriol Serra	1 Jan – 15 Feb, 26 May – 29 May
Matthias Schacht	23 Jan – 31 Mar
Klaus Schmidt	25 May – 29 May
Miklos Simonovitz	21 Feb – 26 Feb
Riste Skrekovski	14 Jan – 10 Feb
Christian Sloper	1 Jan – 30 Jun
Vera Sos	21 Feb – 26 Feb
Joel Spencer	16 Feb – 20 Feb
Maya Stein	5 Jan – 31 Mar
Ricardo Strausz	1 Jan – 14 Jan
Jürgen Suddat	13 Jan – 18 Jan
Tibor Szabo	17 Oct – 22 Oct
Arjun Talwar	23 Jul – 10 Aug
Till Tantan	6 Mar – 10 Mar
Hossein Teimoori	16 Jan – 6 Mar
Tharwat	11 Sep – 18 Sep
Christopher Thravers	5 Jan – 31 Mar
Milan Tuharský	2 May – 29 May
Milan Vojnovic	10 Dec – 13 Dec
Uli Wagner	15 Jan – 25 Feb

Lászlo Wegh	17 Apr – 24 Apr, 19 Jun – 25 Jun
Paul Wolan	20 Jul – 31 Jul
José Zamorra	26 Sep – 31 Dec
Xuding Zhu	17 Sep – 24 Sep

6. Publications

KAM-DIMATIA Series

The Series were founded in 1986 as *KAM Series*. They serve as a prepublication medium for the scientific output of DIMATIA as well as the Department of Applied Mathematics (KAM). Already more than 700 preprints have appeared in the series, and the number of authors already exceeded 100, with about 40 domestic authors and almost 100 authors from abroad. The large number of coauthors indicate the active (both domestic and international) life of DIMATIA and KAM. The current editor is Martin Bálek.

The series are available electronically and distributed internationally particularly to all DIMATIA sites.
(See `http://kam.mff.cuni.cz/~kamserie/`).

In 2005, there were 38 publications in the Series:

(2005-720) D. Kráľ, R. Skrekovski, and M. Tancer: Construction of large graphs with no optimal surjective $L(2;1)$-labelings.

(2005-721) J. Fox, V. Jungic, and R. Radoicic: Sub-Ramsey numbers for Arithmetic Progressions and Schur Triples.

(2005-722) D. Kráľ, J. Sgall, and T. Tichý: Randomized Strategies for the Plurality Problem.

(2005-723) J. Fiala, P. Golovach, and J. Kratochvíl: Distance constrained labelings of graphs of bounded treewidth.

(2005-724) M. Bodirsky and D. Kráľ: Locally Consistent Constraint Satisfaction Problems with Binary Constraints.

(2005-725) M. Hladík: Separation properties of two convex polyhedral sets with RHS-parameters.

(2005-726) D. Kráľ, L. Tong, and X. Zhu: Upper Hamiltonian Numbers and Hamiltonian Spectra of Graphs.

(2005-727) Z. Dvořák, D. Kráľ, P. Nejedlý, and R. Skrekovski: Coloring squares of planar graphs with no short cycles.

(2005-728) M. Bodirsky and J. Nešetřil: Constraint Satisfaction with Countable Homogeneous Templates.

(2005-729) J. Nešetřil and I. Švejdarová: Diameters of duals are linear.

(2005-730) D. Piguet and M. Stein: The Loebl Conjecture for trees of small diameter.

(2005-731) M. Ghebleh, D. Kráľ, S. Norine, and R. Thomas: The circular chromatic index of flower snarks.

(2005-733) Z. Dvořák, ed.: XI. Midsummer Combinatorial Workshop.

(2005-734) Z. Dvořák, R. Skrekovski, and M. Tancer: List-Colouring Squares of Sparse Subcubic Graphs.

(2005-735) R. N. Ball, A. Pultr, and P. Vojtěchovský: Colored Graphs without Colorful Cycles.

(2005-736) J. Kára, J. Kratochvíl, and D. R. Wood: On the Complexity of the Balanced Vertex Ordering Problem.

(2005-737) J. Fiala and J. Kratochvíl: On the computational complexity of the $L_{(2,1)}$-labeling problem for regular graphs.

(2005-738) J. Fiala, J. Kratochvíl, and A. Pór: On the computational complexity of partial covers of Theta graphs.

(2005-739) J. Nešetřil and P. Ossona de Mendez: Grad and Classes with Bounded Expansion I. Decompositions.

(2005-740) J. Nešetřil and P. Ossona de Mendez: Grad and Classes with Bounded Expansion II. Algorithmic Aspects.

(2005-741) J. Nešetřil and P. Ossona de Mendez: Grad and Classes with Bounded Expansion III. Restricted Dualities.

(2005-742) J. Nešetřil: Strom jako matematická struktura – i v umění.

(2005-743) M. Bodirsky and J. Kára: The Complexity of Equality Constraint Languages.

(2005-744) R. Naserasr, Y. Nigussie and R. Skrekovski: Homomorphisms of triangle-free graphs without a K_5-minor.

(2005-745) E. Ondráčková and T. Valla (eds.): Spring School on Combinatorics 2005.

(2005-746) J. Černý: A simple proof for open cups and caps.

(2005-747) J. Kára, ed.: Workshop on Graph Classes, Width Parameters and Optimization 2005.

(2005-748) T. Kaiser, D. Kráľ, and L. Stacho: Tough spiders.

(2005-749) M. Bálek, D. Hartman, and J. Kára, eds.: Open Problems for Homonolo 2005.

(2005-750) M. Nehez and D. Olejar: On Dominating Cliques in Random Graphs.

(2005-751) D. M. Jackson, I. Moffatt, and A. H. Morales: On the group-like behaviour of the Le-Murakami-Ohtsuki invariant.

(2005-752) P. Ossona de Mendez and P. Rosenstiehl: Encoding pointed maps by double occurrence words.

(2005-753) A. Pór and D. R. Wood: Colourings of the Cartesian Product of Graphs and Multiplicative Sidon Sets.

(2005-754) P. Bella, D. Kráľ, B. Mohar, and K. Quittnerová: Labeling planar graphs with a condition at distance two.

(2005-755) M. Loebl: Lecture Notes on Matroids.

(2005-756) F. Mráz: On the Maximal Set of Feasible Coefficients in Interval Linear Systems.

(2005-757) L. Clark: Asymptotic Distribution of the Sum of the Lengths of Ascents or of Descents in Permutations.

7. Miscellanea

European Prize in Combinatorics

Continuing with the tradition established in Prague in 2003, the second European Prize in Combinatorics was awarded during the EuroComb'05. The prize is established to recognize excellent contributions in Combinatorics by young European researchers (eligibility of EU) not older than 35. The prize carries a monetary award of 2500 Euro.

During EuroComb'05 the prize was awarded to *Dmitry Feichtner-Kozlov* for deep combinatorial results obtained by algebraic topology and particularly for a solution of a conjecture of Lovász.

Post and Predocs

DIMATIA supported (together with EU Research Training Network COMBSTRU) the following postdocs and predocs during 2005: Pascal Ochem, France (Jan–Mar), Maya Stein, Germany (Jan–Mar), Laurence Rackham, UK (Jan–Mar), Lina Jansson, Sweden (Jan–Mar), Henning Bruhn, Germany (Jan–Mar), Julia Böttcher, Germany (Jan–Mar), Christian Sloper, Norway (Jan–Mar), Jordi Moragas, Spain (Feb), Iain Moffat, UK (Jun–Aug), Anna de Mier, Spain (Oct–Dec), Tobias Gerken, Germany (Nov–Dec).

Hlávka Prize

DIMATIA student Robert Šámal was awarded the prestigious *Hlávka Prize* which is awarded annually to the best students at universities in Prague and Brno.

Study Stays

One of the goals of DIMATIA is to support international exchange of young students and researchers among its members. In 2005, the following undergraduate and graduate students visited DIMATIA and COMBSTRU partners abroad:

Jan Foniok (Berlin, March), Robert Šámal (Budapest, April), Vít Jelínek and Jakub Černý (Berlin, April), Martin Bálek (Barcelona, May), Diana Piguet (Barcelona, May–June), Martin Bálek, Marek Krčál, Jan Hladký, and Josef Cibulka (DIMACS, June–July), Jan Foniok (Barcelona, June–July), Jan Foniok, Vít Jelínek, Diana Piguet, Robert Šámal, and David Hartman (Barcelona, September), Diana Piguet (Pisa, September).

Research Experiences for Undergraduates
DIMATIA organizes the international programme *Research Experiences for Undergraduates* (REU) which is a joint programme of DIMACS and DIMATIA. This programme was highly evaluated by the NSF and repeatedly recommended for funding. The programme is intended for undergraduate students to gain international research experience.

This year it was held from June 6 to August 10. It was attended by 27 participants from Charles University and various universities in the USA. A part of the programme took place at the Rutgers University, another part at the Charles University in Prague.

DDR
DIMACS-DIMATIA-Rényi programme is a particular programme supported by Czech and Hungarian government agencies and the NSF. It organizes an exchange and several workshops, some of which are reflected in this report.

Spring Schools
DIMATIA organizes the traditional *Spring School in Combinatorics* which is open to all students at the participating institutions. During the past three years, the Spring Schools have been supported by an EU grant within the Socrates IP programme.