



9th International Workshop on



Descriptional Complexity of Formal Systems

High Tatras, Slovakia, July 20–22, 2007

<http://dcfs07.ics.upjs.sk>

Call for Participation

The International Workshop on Descriptional Complexity of Formal Systems is the 9th in the series. The purpose of the workshops is to encourage high-quality research and to provide an opportunity of bringing together specialists active in various areas. Principal topics of interest include (but are not limited to):

- *various measures of descriptional complexity of automata, grammars, languages, and of related systems*
- *trade-offs between different formal systems and/or different modes of operation (e.g., determinism and nondeterminism) with respect to descriptional complexity*
- *circuit complexity of Boolean functions and related measures*
- *succinctness of description of (finite) objects*
- *descriptional complexity in resource-bounded or structure-bounded environments*
- *structural complexity*
- *descriptional complexity of formal systems for applications (e.g. software reliability, software and hardware testing, modelling of natural languages)*
- *descriptional complexity aspects of nature-motivated (bio-inspired) architectures and unconventional models of computing*
- *Kolmogorov complexity and its relation to descriptional complexity.*

DCFS 2007 will take place immediately after CIAA 2007 – 12th International Conference on Implementation and Application of Automata, Prague, Czech Republic, July 16-18, 2007, and thus it will be easy to attend both CIAA and DCFS.

DCFS and its predecessors DCAGRS (Descriptional Complexity of Automata, Grammars and Related Structures) and FDSR (Formal Descriptions and Software Reliability) were previously held in Paderborn (1998), Magdeburg (1999), Boca Raton (1999), London/Ontario (2000), San José (2000), Vienna (2001), London/Ontario (2002), Budapest (2003), London/Ontario (2004), Como (2005), and Las Cruces/New Mexico (2006).

Invited Speakers

Helmut Jürgensen (Potsdam, Germany, and London/Ontario, Canada)

Carlo Mereghetti (Milano, Italy)

Markus Nebel (Kaiserslautern, Germany)

Jiří Wiedermann (Praha, Czech Republic)

Program Committee

Henning Bordihn (Potsdam, Germany)

Cristian Calude (Auckland, New Zealand)

Erzsébet Csuha-J-Varjú (Budapest, Hungary)

Viliam Geffert (Košice, Slovakia, co-chair)

Juraj Hromkovič (Zürich, Switzerland)

Oscar Ibarra (Santa Barbara/California, USA)

Lucien Ilie (London/Ontario, Canada)

Alica Kelemenová (Opava, Czech Republic)

Werner Kuich (Wien, Austria)

Hing Leung (Las Cruces/New Mexico, USA)

Andreas Malcher (Frankfurt, Germany)

Carlos Martin-Vide (Tarragona, Spain)

Bořivoj Melichar (Praha, Czech Republic)

Victor Mitrana (București, Romania)

Jeffrey Shallit (Waterloo/Ontario, Canada)

Gheorghe Păun (București, Romania, and Sevilla, Spain)

Holger Petersen (Stuttgart, Germany)

Giovanni Pighizzini (Milano, Italy, co-chair)

Jacques Sakarovitch (Paris, France)

Sheng Yu (London/Ontario, Canada)

Steering Comitee

Erzsébet Csuha-J-Varjú (Budapest, Hungary)

Jürgen Dassow (Magdeburg, Germany)

Helmut Jürgensen (Potsdam, Germany, and London/Ontario, Canada)

Hing Leung (Las Cruces/New Mexico, USA)

Lucian Ilie (London/Ontario, Canada)

Chandra Kintala (Bangalore, India)

Giovanni Pighizzini (Milano, Italy, chair)

Detlef Wotschke (Frankfurt, Germany)

Participating Institutions

DCFS 2007 is jointly organised by the IFIP Working Group 1.2 on Descriptive Complexity, by the Institute of Computer Science of P.J.Šafárik University, Košice, Slovakia, and by the Slovak Society for Computer Science. The workshop is sponsored by the Department of Informatics and Communication of the University of Milano, Italy.

Proceedings

All invited and accepted papers will appear in the conference proceedings, which will be available during the conference. In addition, selected papers will be published in a special issue of the International Journal of Foundations of Computer Science.

Local Arrangements

DCFS'07 Organizing Committee
Department of Computer Science
P.J.Šafárik University, Jesenná 5
040 01 Košice, Slovakia
e-mail: dcfs07@ics.upjs.sk
<http://dcfs07.ics.upjs.sk>

Registration Office

The registration office will be located at the reception desk at the Atrium Hotel. It will be open from 14:00 to 22:00 on Thursday, July 19, and from 7:30 to 9:00 on Friday, July 20. Conference site address:

ATRIUM HOTEL ***

Nový Smokovec 42
062 01 Vysoké Tatry
Slovakia

Phone: ++421 +52 44 22 342

GSM: ++421 +903 990 105

++421 +905 881 276

Fax: ++421 +52 44 22 304

THURSDAY, JULY 19th

14:00 – 22:00 Registration

FRIDAY, JULY 20th

Morning

9:00 – 9:10 Opening of DCFS 2007

9:15 – 10:15 *J. Wiedermann (Prague, with D. Pardubská, Bratislava): Wireless Parallel Computing and its Links to Descriptive Complexity*

*** 10:15 – 10:45 Coffee Break ***

10:45 – 11:15 *B. Palano (Milano): A Regularity Condition for Context-Free Grammars*

11:20 – 11:50 *T. Y. Nishida (Toyama): Descriptive Complexities of Grammars over Alphabets with Finite Parameters*

11:55 – 12:25 *J. Dassow (Magdeburg), R. Stiebe (Magdeburg): Nonterminal Complexity of Some Operations on Context-Free Languages*

Afternoon

14:30 – 15:00 *B. Truthe (Tarragona): Remarks on Context-Free Parallel Communicating Grammar Systems Generating Crossed Agreements*

15:05 – 15:35 *G. Păun (Bucharest, Sevilla), M. J. Perez-Jimenez (Sevilla), T. Yokomori (Tokyo): Representations and Characterizations of Languages in Chomsky Hierarchy by Means of Insertion-Deletion Systems*

*** 15:35 – 16:05 Coffee Break ***

16:05 – 16:35 *A. Meduna (Brno), J. Techet (Brno): Reduction of Scattered Context Generators of Sentences Preceded by Their Leftmost Parses*

16:40 – 17:10 Business Meeting

Evening

20:00 + OOPS!! (See Conference Events below.)

SATURDAY, JULY 21th

Morning

9:15 – 10:15 *H. Jürgensen (Potsdam, London/Ontario): Complexity, Information, Energy*

*** 10:15 – 10:45 Coffee Break ***

10:45 – 11:45 *M. Nebel (Kaiserslautern): Compact Descriptions for Efficient Algorithms*

11:50 – 12:20 *R. Loos (Tarragona), A. Malcher (Frankfurt am Main), D. Wotschke (Frankfurt am Main): Descriptive Complexity of Splicing Systems*

Afternoon

14:00 + Trip to Hrebienok

SUNDAY, JULY 22nd

Morning

9:15 – 10:15 *C. Mereghetti (Milano)*: The Descriptive Power of Sublogarithmic Resource Bounded Turing Machines

***** 10:15 – 10:45 Coffee Break *****

10:45 – 11:15 *M. Kutrib (Giessen), J. Reimann (Giessen)*: Optimal Simulations of Weak Restarting Automata

11:20 – 11:50 *M. Almeida (Porto), N. Moreira (Porto), R. Reis (Porto)*: Exact Generation of Minimal Acyclic Deterministic Finite Automata

11:55 – 12:25 *K. V. Archangelsky (Kiev)*: A new measure of descriptive complexity of languages and formal power series: compactness

Afternoon

14:30 – 15:00 *R. Freund (Vienna), M. Oswald (Vienna)*: CD Grammar Systems with Regular Start Conditions

15:05 – 15:35 *T. Masopust (Brno), A. Meduna (Brno)*: Descriptive Complexity of Generalized Forbidding Grammars

***** 15:35 – 16:05 Coffee Break *****

Evening

18:30 + Good-Bye Party

Location (Venue)

In order to help people socialize and exchange new ideas, DCFS 2007 will be organised as a single building conference. That is, accommodation for all participants, full-board meals, together with a lecture room will be in the Atrium Hotel, Nový Smokovec (New Smokovec), High Tatras, Slovakia.

The Atrium Hotel (www.atriumhotel.sk) is located at the foothill of Slavkovský štít. Comfortable and furnished rooms offer a breathtaking view to the beautiful mountains and surroundings. For the address, see *Registration Office*, above.

Nový Smokovec is an administrative center (actually, a tiny town) of the Tatra National Park, the most compact mountains in Europe, i.e., of alpine type, but occupying a very small area. Among others, High Tatras offer exceptionally clean air. In summer season, you can enjoy hiking paths, ranging from gentle to highly demanding, winding among spectacular peaks and rock walls. (See e.g. www.tanap.sk, www.tatry.net, or www.vysoketatry.com.)

New Smokovec was the first settlement in High Tatras that was open also in winter (since 1883). The current sanatorium for tuberculosis and other respiration illnesses was open in 1925 and a modern sanatorium house Palace was open in 1933. New hotels were added close before the World Ski Championships in 1970.

Getting There

The entry point for the High Tatras area is the railway station in the city of Poprad. Since most of the airlines, trains and buses will have changed their timetables by July 19, we can provide very general information only. Please check the timetables on the web.

By Air: The nearest airport is Poprad

(www.airport-poprad.sk/english.html), however only a few flights land there. So we recommend flying to Bratislava (www.airportbratislava.sk), Košice (eng.airportkosice.sk) or Vienna, Austria (www.viennaairport.com). From these points you can take a direct IC express or a fast train to Poprad.

By Train to Poprad-Tatry: There is a direct connection by IC express or fast trains to Poprad from the following cities:

Bratislava – 4 hours, departures approximately every 2 hours

Košice – 2 hours, departures approximately every 2 hours

Vienna (Austria) – 6 hours, 2 direct trains a day, but approximately every 2 hours with changing trains in Bratislava

Prague – 7-9 hours, there are 4 direct trains a day, three of them being overnight trains with sleeping wagons, and several other connections with changing trains either in Bratislava or in Žilina).

Timetables can be found at: www.db.de.

From Poprad-Tatry to Nový Smokovec:

Take a direct connection from the Poprad railway station by Tatra's Electrical Railways (a mountain narrow-gauge train). The access to the platform for this train is *upstairs from the hall in the railway station building*. Take the trains directed to Štrbské Pleso. When you get to the station Starý Smokovec, prepare yourself for getting off at the next stop, which is Nový Smokovec (New Smokovec). After getting off, you will find yourself 50 meters from the entrance to the Atrium hotel.

Timetables for the mountain train can be found at: jizdnirady.atlas.cz.

Taxi: A taxi from the airport or bus/train station costs about 350 - 700 SKK (negotiate in advance).

By Car: Please note, that if you want to use highways in Slovakia, you need to have a highway-toll ticket, which can be bought at every petrol station.

- Coming from the **west by Road E50 or D1**, i.e. from Žilina, you have the following choices: (1) Either exit from the highway at Liptovský Hrádok and follow the signs navigating you to Pribilina, Podbanské, Štrbské Pleso (please note that this road goes through a wonderful mountain scenery for about 30 km, but you will neither pass through any villages nor go along any petrol station) or (2) follow E50 up to Tatranská Štrba where you turn to the left in the direction to Štrbské Pleso. In either case, drive from Štrbské Pleso in the direction to Starý Smokovec/Smokovce. After passing by the sign announcing the city limits of Nový Smokovec/Smokovce you will see the Atrium hotel on your left after some 500 meters.

- Coming from the **east by Road E50**, i.e. from Prešov or Košice, you will first pass through Poprad where you should watch for the signs navigating you to Starý Smokovec/Smokovce. After coming to Starý Smokovec/Smokovce and crossing the railroad, turn immediately to the left, follow the main street in Smokovce for about 1 km and watch for the Atrium hotel on your right.

- Coming from the **north**, i.e. from Poland, crossing the border in Lysa Polana/Javorina, follow the signs for Tatranská Lomnica and then to Starý Smokovec/Smokovce. After crossing the city limits of Horný Smokovec/Smokovce, follow the main street for about 2 km and watch for the Atrium hotel on your right.

Climate

The weather is usually very pleasant and

sunny here in July, with day heights ranging between 25°–30°C (77°–86°F) and night lows around 20°C (68°F). But be prepared for sudden changes with possible rain, wind, and temperatures around 17°C (62°F).

Entry Visa

Citizens of most European countries, U.S.A. and Canada do not need entry visas. If you are not quite sure, check with the nearest Slovak consulate.

Conference Events

All participants and accompanying persons are invited to take part in the following events (for details see dcfs07.ics.upjs.sk, item 'Conference Events'):

Friday, July 20 Evening – OOPS!! Open Open-Problem Session: (Reasonably short) contributions to this session are free, without any submission process. Prepared transparencies or electronic presentations are welcome.

Saturday, July 21 Afternoon – Tour by funicular to Hrebienok and then on foot to Malá Studená Dolina (Small Cold Valley). You will be able to choose between three different levels of difficulty.

Sunday, July 22 Evening – Good-bye Party: A farewell reception at the Atrium hotel.

Fees

Participants are requested to fill in registration form at the DCFS 2007 website

dcfs07.ics.upjs.sk, item 'Registration'.

This web page contains also a link to a calculator showing the current exchange rates from foreign currencies to Slovak Crowns (SKK). Registration and room reservation

will be confirmed. The fees are listed below. All prices shown here are in SKK and should arrive to the conference bank account in SKK, free of bank charges.

Registration Fee: The regular registration fee covers a copy of the proceedings, other conference materials, trip activities with the insurance for the trip, the local tax, and other expenses of the organizers, like the fees for the conference room. The student fee covers the conference materials without the proceedings, trip activities with insurance for the trip, and the local tax.

	Regular Student	
Early (before May 20):	7 750	2 100
Late (after May 20):	8 600	2 300

Accommodation Fee: The prices shown below are per person and per night, including breakfasts.

Single Room: 2 125 SKK

Double Room: 1 415 SKK (One bed in a double room.)

Family Suite: 1 264 SKK (One bed in a family suite, which consists of two separate double rooms with two separate bathrooms, but sharing a single entry to the hotel corridor.)

Meals:

Dinner on July 19: 350 SKK

Full Board: 950 SKK (Per day, during the period July 20–22, includes lunches, dinners, reception, and coffee breaks.)

Extras:

Additional proceedings: 250 SKK each

Accompanying person(s): The fee for one accompanying person consists of 750 SKK for registration (conference souvenirs, trip activities with insurance, and the local tax), 475 SKK for dinners per day including reception (dinner on July 19 for 350 SKK), and 2 125 SKK or 1 415 SKK or 1 264 SKK per

night, depending on the type of accommodation. Lunches can be obtained on site, at extra cost.

Payment

You can pay either by Bank Transfer or by Credit Card (VISA, EuroCard/MasterCard). If you choose bank transfer, please pay the required amount to the following account (please do not forget to fill Details of Payment when transferring the fee):

Beneficiary: Slovak Society for
Computer Science

Address: FMFI UK
Mlynská dolina
842 48 Bratislava, Slovakia

Account number: 26 2679 3160/1100

Bank: TATRA BANKA a.s.
Vajanského nábr. 5
810 06 Bratislava, Slovakia

SWIFT Code: TATR SK BX

IBAN Code: SK18 1100 0000 0026 2679 3160

Details of Payment: DCFS07 - name surname

If you choose credit card: For the increased security of your credit card number, you have to fill in the form located at

dcfs07.ics.upjs.sk, item 'Print-Outs',
file 'Form for Credit Card Payment.pdf',

and send it (signed) to DFCS 2007 organizers either by fax to

++421 +55 62 221 24
++421 +55 62 209 49

or by surface mail to

DCFS 2007 - Registration
Institute of Computer Science
P.J.Šafárik University
Jesenná 5, 040 01 Košice, Slovakia

Organizing Comitee

Gabriela Andrejková, Jozef Gajdoš, František Galčík, Viliam Geffert, Peter Mlynárčik, Dana Pardubská, Gabriel Semanišin (chair), Eva Trenklerová