

IFIP Council
Cape Town, South Africa
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Report of TC1 on Foundations of Computer Science

Takayasu Ito
(TC1 Chair)

Introductory Remarks

TC1 has been established since January 1st, 1997. The current TC1 Chair is Takayasu Ito (Japan), and the first TC1 meeting chaired by him was held at Berlin on February 26th, 2003. Main concerns at the Berlin meeting were the financial problem incurred by WCC2002 for TCS2002 invited speakers and need of assessments of the TC and its WGs. Since the Berlin meeting there has been no TC1 meeting; the next TC1 meeting will be held at Toulouse at the end of August, 2004. However, after the Berlin meeting there have been extensive email exchanges among TC1 members to discuss various issues; in particular, TCS2002 financial issues, assessments of TC1 membership and WG activities, and some issues of TCS2004.

This report is organized as follows:

1. Meetings
2. TC1 Membership: Appointments and Changes
3. Several Issues at TC1
4. Working Group Activities
5. TCS 2004 Conference

Appendix I: Activity Reports of Working Groups of TC1

Appendix II: Call For Papers of TCS 2004

1. Meetings

The following meetings of TC1 and its WGs have been held/will be held in 2003-2004.

[TC1 Meetings](2003-2004)

TC1 Meeting	February 26, 2003	Berlin, Germany
TC1 e-Meeting	March 15 - 19, 2004	(E-mail meeting)
TC1 Meeting	August, 2004	Toulouse, France

[WG Meetings](2003-2004)

WG1.1 Meeting	July, 2003	Sydney, Australia
WG1.1 Meeting	September, 2003	September, Germany
WG1.2 Meeting	July 12-14, 2003	Budapest, Hungary

WG1.2 Meeting	July 5-9, 2004	Budapest, Hungary
WG1.2 Meeting	July 26-28, 2004	London/Ontario, Canada
WG1.3 Meeting	June 1-4, 2003	Menorca, Spain
WG1.3 Meeting	March 26, 2004	
WG1.4 Meeting	October, 2003	Sapporo, Japan
WG1.4 Meeting	July, 2004	Banff, Canada
WG1.4 Meeting	October, 2004	Padova, Italy
WG1.6 Meeting	June 12, 2003	Valencia, Spain
WG1.7 Meeting	April 5-6, 2003	Warsaw, Poland
WG1.7 Meeting	March, 2004	Barcelona, Spain

2. Changes in Membership and Officers

There are several changes in TC1 members and WG chairs and members.

2.1 TC1 Members

TC1 Members D. Wood (CA), H. Jurgensen (CA), G. Hotz (DE), Y. Feng (CN) and J. de Bakker (NL) resigned at the end of 2003. We express our thanks for their collaborations to TC1 during their TC1 membership.

Huimin Lin (CN) is a new TC1 representative from China (Chinese Institute of Electronics) as the successor of Y. Feng (CN). Swiss Federation of Information Processing Societies (SVI/FSI) proposed Uwe Nestmann as their TC1 representative. Their appointments were approved by TC1 through e-mail.

H. Lin and U. Nestmann have been appointed as the TC1 members on January 1st, 2004.

The current TC1 members are categorized as follows:

- (a) Representatives from IFIP Member Organizations
- (b) Members recommended by TC1 and approved by the relevant IFIP Member Organizations
- (c) Distinguished Fellow members, nominated and approved by TC1.

Note that the category (c) members do not have voting rights, and currently, Professors C.A.R. Hoare, R. Milner, R.O. Rabin and L. Valiant are the Distinguished Fellow members.

The current TC1 officers and members are as follows:

[Chair] Takayasu Ito (JP)

[Secretary] Naoki Kobayashi (JP)

[TC1 Members]

AR	J. Heintz ^(a) ;	AT	W. Kuich ^(a) ;	AU	P. D. Eades ^(a) ;
BG	B. Sendov ^(a) ;	BR	I. Simon ^(a) ;	CA	N. Santoro ^(b) ;
CH	U. Nestmann ^(a) ;	CL	R. Baeza-Yates ^(a) ;	CN	H. Lin ^(a)
CZ	J. Gruska ^(a) ;	DE	W. Brauer ^(a) ;	DK	M. Nielsen ^(a)
ES	J. Diaz ^(a) ;	FR	M. Nivat ^(a) ;	FR	J. Sakarovitch ^(b)
FI	A. Salomaa ^(a) ;	GB	C. A. R. Hoare ^(c) ;	GB	R. Milner ^(c)

GB D. Sannella ^(a); GR N. Missirlis ^(a); GR P. Spirakis ^(b)
 HU Z. Esik ^(a); IT G. Ausiello ^(a); IT A. Bertoni ^(b)
 IT U. Montanari ^(b); NL P. van Emde Boas ^(b); NL J. van Leeuwen ^(a)
 NL G. Rozenberg ^(b); PT. A. Sernadas ^(a); PL J. Blazewicz ^(a)
 PL A. Tarlecki ^(b); SI V. Batagelj ^(a); SK B. Rován ^(a)
 TH S. Charmonman ^(a); US M. Hinchey (IEEE) ^(a); US D. S. Johnson (ACM) ^(a)
 US J. C. Mitchell (ACM) ^(b); US M. O. Rabin ^(c); US J. F. Traub (ACM) ^(b)
 US L. G. Valiant ^(c); ZA A. van der Walt ^(a)

<Note> (a) indicates a TC1 representative from an IFIP Member Society.

(b) indicates a member recommended by TC1.

(c) indicates a Distinguished Fellow member.

WG Chairs are ex-officio members.

2.2 WG Chairs and Members

There have been several changes in WG Chairs and Members.

* Chair of WG1.3 on Foundations of Systems Specification has been changed from Peter D. Mosses (DK) to Jose L. Fiadeiro (GB). J.L. Fiadeiro has been appointed as the new WG1.3 Chair on January 1st, 2004. Thanks for P.D. Mosses, who organized WG1.3 activities in a nice and fruitful way.

* Chair of WG1.5 on Cellular Automata and Machines was G. Mauri (IT), but he resigned under some confusing situation of WG1.5 to be explained in Section 4. At present none of WG Chair, Vice Chair and Secretary is appointed. The past WG1.5 Chair has NOT submitted their WG1.5 activity reports to TC1 more than two years. Hence, WG1.5 has been dormant, and their WG activities have not been visible in TC1. It is better to establish a more active WG, resolving the current WG1.5.

* Chairs of WG1.1 and WG1.2 are now in their third terms, exceeding two terms limit (according to IFIP Bylaws 4.3.7) of WG chairmanship. They are now working to find their successors, getting collaboration of their WG members.

* There have been some membership changes in WG1.3 and WG1.7, as explained below. Also WG1.6 has submitted their proposal of adding several new members; this will be discussed at the TC1 e-meeting to be held in March, 2004.

[WG1.1] No change in Chair and Members. (Chair: J.F. Traub)

[WG1.2] No change in Chair and Members. (Chair: D. Wotschke)

[WG1.3] Chair has been changed from P.D. Mosses to J.L. Fiadeiro, and P.D. Mosses will remain as a WG1.3 member.

The following membership changes have been approved:

New Members: T. Mossakowski (DE), E. Duval (FR), T. Maibaum (GB)

Resignations: H. Ganzinger (DE), J. Loeckx (DE), J.-P. Jouannaud (FR), A. Sernadas (PT),

E. Wagner (US)

[WG1.4] No change in Chair and Members. (Chair: A. Sharma)

[WG1.5] Chair (G. Mauri) has resigned, and accordingly Vice Chair (E. Goles) and Secretary (T. Worsch) have

resigned. They remain as WG1.5 members.

[WG1.6] No change in Chair and WG1.5 Members. (Chair: C. Kirchner)

But WG1.6 is going to propose adding several new members; their proposal will be discussed at TC1 e-mail meeting to be held at mid-March, 2004 to get approval of the TC members.

[WG1.7] No change in Chair. (Chair: R. Gorrieri)

The following new members have been approved: J. Juriens (DE), J.-J. Quisquater (BE)

2.3 TCS2004 Conference Chair and PC Chairs

- Conference Chair: Jean-Jacques Levy (FR)
- PC Chairs: Ernst W. Mayr (DE); JohnC. Mitchell (US)

3. Several Issues at TC1

3.1 New TC1 Homepage

Since the current TC1 Chair and Secretary have been appointed they have worked to build up a new TC1 homepage because of non-availability of the previous TC1 homepage. The current TC1 homepage address is:

<http://www.kb.cs.titech.ac.jp/IFIP-TC1/>

which is maintained by the Secretary N. Kobayashi. The homepage contains the following:

- a short history of TC1
- AIMS and SCOPE of TC1
- List of TC1 Members
- TC1 Working Groups and links to their homepages
- TC1 Activity Reports (since TC1 Meeting at Berlin on February 26, 2003)
- Events of TC1 and its WGs
- Links to useful IFIP addresses (incl. IFIP Homepage, WCC Homepage, IFIP Bulletin, IFIP Statutes & Bylaws)
- Information useful for TC1 Members (incl. Format of WG Report, Guidelines and Procedures for Applying TC1 Funds)

The homepage will be continuously updated, whenever information approved by the Chair is received.

3.2 Role of an IFIP TC1 Member

The following statement concerning "The Role of an IFIP TC1 Member" has been formed at TC1.

<<Role of an IFIP TC1 Member>>

- TC1 members are asked to provide information to the Technical Committee about the latest progress on research and education on foundations of computer science in the spirit of AIMS and SCOPE of TC1.
- TC1 members should attend annual TC1 meetings, or send their proxy or apology when they are unable to attend.
- TC1 members should join in and promote TC1 activities, participating to events organized by TC1 and its Working Groups, and they are encouraged and expected to express their opinions and views at TC1 meetings or by use of emails not only as TC1 members but also as the leading scientists in the area of foundations of computer science.
- It is expected that the TC1 representative from an IFIP member organization would report on the latest important R&D activities on TCS in his organization and country.

- It is expected that TC1 members would collaborate to WGs to promote their activities, providing advices and suggestions on their research directions, activities and their membership issues.
- It is expected that TC1 members would collaborate in promotion of TC1 activities, hosting TC1 events and sending participants to TC1 events.

3.3 Financial Issues and Guidelines for Applying TC1 Funds

[Guidelines for Applying TC1 Funds]

In order to make use of TC1 Funds clear and open "Guidelines and Procedures for Applying TC1 Funds " has been formed, and it is announced at the TC1 Homepage. Major points of The GUIDELINES are as follows:

(1)A proposal should contain the following:

- Title of the proposal
- Name of the principal proposer
- Name of the event and its organizer
- Date(s) and place of the event
- Aims and scope of the event
- Reasons and explanations for applying (partial) support of TC1 funds
- Requested amount of support in the proposal, and total budget of the event
- Date that the TC1 decision on the proposal is needed.

(2) A proposal will be reviewed by the TC1 Chair and a couple of TC1 members.

After getting their approvals the proposal will be discussed at TC1 by email. After getting approval of TC1 the proposal will be sent to the IFIP Office for their review. After approvals by TC1 and the IFIP Office the decision on the proposal will be notified to the principal proposer, and then the proposer would contact directly to the IFIP Office to get the approved amount for his proposal. At this phase of getting support of TC1 fund the principal proposer must submit the following:

- Copy of the final proposal.
- Copy of notification of acceptance of the proposal.
- Copy of documents (bills & receipts like hotel bills, payments for airfares & trains, etc.) for all payments to be covered by the TC1 fund.
- Copy of documents related to the proposal, including a copy of invitation letter that explains what & how he will be supported.

These must be sent to the IFIP office and the TC1 Chair, keeping their copies by himself.

(3) After finishing the event the principal proposer must submit his report to the TC1 Chair by a deadline specified by the TC chair.

[TC1 funds for 2003 and 2004]

At IFIP GA2003 (Lithuania) the following TC1 funds are allocated:

2003: 4,761 Euro

2004: 3,699 Euro

In 2003 there was no proposal of applying for the TC1 fund, so that no TC1 fund was used in 2003.

3.4 Financial Issues of TCS 2002 at Montreal: Unhappy events incurred by WCC2002 OC

{This is an unpleasant issue to report. But it would be of some use to tell how seriously some TC1 members have been damaged financially and affected mentally by this unpleasant issues incurred by WCC 2002 Organizing Committee.}

The financial issues incurred by the WCC 2002 Organizing Committee were reported briefly at the TC1 Meeting at Berlin on February 26, 2003 from the past TC1 Chair G. Ausiello (IT). We have had much concern about how things will be treated for invited speakers at TCS 2002. Because of lack of information we have decided to discuss the issues at the next TC1 meeting.

On March 31, 2003 N. Santoro (Canada), Conference Chair of TCS 2002, mailed a brief report to explain what has happened. He asked to consider use of TC1 fund to reimburse

\$200 for J. Gruska (an invited speaker of Track (1))

and to discuss possibilities of reimbursing the following personal loss:

\$2300 for R. Baeza-Yates (PC Chair of Track (1))

\$1800 for N. Santoro (Conference Chair).

N. Santoro informed that other three invited speakers and U. Montanari (PC Chair of Track (2)) agreed to get support from other sources. TCS 2002 consisted of Track (1) on Algorithms, whose PC Chair is R. Baeza-Yates, and Track (2) on Semantics and Logics, whose PC Chair is U. Montanari. U. Montanari has resolved the issues for Track (2) by the end of March, 2003.

TC1 Members were not informed anything about financial issues of TC1 until the current TC1 Chair is appointed, and also they were not informed almost anything about financial and organizational issues of TCS2002. In order to discuss the issues raised by N. Santoro the TC1 Chair has requested to him to submit the following documents in his mail of April 2nd, 2003:

- a detailed report on TCS2002, including a list of participants,
- copies of his mails and letters to invited speakers to explain
 - * how they will be supported,
 - * what happened at WCC '02 and TCS '02, including mails (or letters) to tell that G. Boynton and CIPS cannot pay the amount promised to him (and/or invited speakers).
- receipts of payments (or their copies)
- approval and endorsement by G. Ausiello (Chair of the Steering Committee of TCS2002, and the past TC1 Chair), since members of TC1 and the TCS2002 Steering Committee have not been informed anything on the financial issues of TCS 2002 including financial support for the TCS2002 invited speakers.

An incomplete report on TCS2002 was submitted on December 24, 2003, so that the TC1 Chair has requested to N. Santoro to rewrite it. No other documents have been submitted yet.

The financial issues incurred by WCC '02 Organizing Committee are very delicate and difficult ones, since a company to handle financial issues of WCC '02 has fallen into bankruptcy and the bankruptcy court hearing is going on.

Since April, 2003 N. Santoro, R. Baeza-Yates, J. Gruska, G. Ausiello and W. Brauer have mailed, requesting use of TC1 fund for so-called reimbursements without preparing the documents mentioned above. The TC1 Chair has maintained his position that TC1 discussions will be started only after the above documents are ready. This unpleasant situation has continued even after the TC1 Chair notified them the decision made at GA2003 (Lithuania); IFIP Executive Board will compensate to TCS2002 volunteers (invited collaborators) for their personal losses after the bankruptcy court hearing.

At the end of January, 2004 the TC1 Chair have decided to organize TC1 Ad Hoc Group to discuss and resolve two issues: (1) financial issues incurred by TCS 2002, (2) help organize TCS 2004.

The Ad Hoc Group consists of the following members:

Chair: T. Ito (TC1 Chair),

Members: G. Ausiello (Past TC1 Chair), W. Brauer (Past IFIP Vice President),

J.-J. Levy (TCS2004 Conference Chair), U. Montanari (TCS 2002 PC Co-Chair),

N. Santoro (TCS2002 Conference Chair), J. van Leeuwen (TCS 2000 PC Co-Chair)

[N.B.] G. Ausiello and N. Santoro are contact persons to R. Baeza-Yates and J. Gruska.

U. Montanari and J. van Leeuwen are recruited to help J.-J. Levy, TCS2004 Conf Chair.

- All of the group members know that TC1 funds are should not be used to so-called TCS 2002 reimbursements under the bankruptcy court hearing.
- The Chair has proposed to N. Santoro, G. Ausiello and W. Brauer to take action of "Call for Donation" for the sake of R. Baeza-Yates (CL) and others, if they think their personal losses must be handled quickly.

However, no comment and opinion of resolving the TCS2002 financial issue is provided yet. On the other hand, the organizational issues of TCS2004 has been much improved by the efforts of J.-J. Levy, Conference Chair of TCS 2004.

3.5 Membership Status: A proposal of revising IFIP Bylaws

In November-December, 2003 we have worked to clarify the membership status for 2004. The result is the list of TC1 members, explained in **Section 2**.

We have 42 TC1 members (including TC1 Chair) for 2004; among them we have

- Category (a) Members: 27 TC1 Representatives from IFIP Member organizations,
- Category (b) Members: 11 TC1 Members recommended by TC1
- Category (c) Members: 4 Distinguished Fellow member

TC1 has decided to use Category (c) to identify Distinguished Fellow members in the area of Foundations of Computer Science; note that they do not have voting rights, following the definition of Category (c) member in IFIP Bylaws. We have the following Distinguished Fellow members:

C.A.R. Hoare (GB), R. Milner (GB), R.O. Rabin (US), L. Valiant (US)

Remark: During the process of clarifying the membership status we have found that we have at least several TC1 members who do not belong to their domestic IFIP Member societies. Most of IFIP Member societies are of engineering in its nature, while we have many TC1 members whose backgrounds are of mathematics and logics (and partly, theoretical physics) and who have no close contact with their domestic IFIP Member societies.

Taking into account of experiences of TC1 it may be good to consider some changes in rules of TC membership defined in **IFIP Bylaws 4.3.2 Membership**. The following are of main points considered:

Category (a): one representative recommended by each Full IFIP Member society and approved by the TC.

Category (b): members recommended by the TC and accepted at Technical Assembly. The number of Category (b) members should be less than the number of Category (a) members, and the maximum number of Category (b) members from an IFIP Member society must be less than 4. Note that the Category (b) members should be active experts in the area of the TC.

Category (c): Distinguished Fellow members who have made distinguished contributions in the fields of the TC; in particular, those who have made outstanding contributions to explore and develop new branches and areas in the fields of the TC. It is preferred that their contributions are widely recognized already in some definite forms (such as receiving some distinguished awards).

Category (d): Corresponding members who are recommended by non-IFIP Member societies and are accepted by the TC.

- Category (a) members have full voting rights, and they are eligible for election as the TC officers (Chair, Vice Chair, Secretary). The term of appointment of Category (a) members is three years, renewable twice.
- Category (b) have full voting rights, and they are eligible for election as the TC officers. But in election for the TC Chair an elected member must be accepted by the relevant IFIP Member society before his appointment as the TC Chair. The term of appointment of Category (b) is three years, renewable twice.
- Category (c) members have full voting rights, and they are normally not eligible for election as the TC officers. A Category (c) member is a life-time member as far as the TC exists.
- Category (d) members do not have any formal voting right, and they are not eligible for election. The term of appointment of Category (d) members is three years, renewable twice with approval by the TC.
- WG Chairs are ex-officio members of its parent TC during their WG chairmanship, and he has full voting rights.
- Appointments: A membership nomination must be attached with a short CV and explanations to tell why his appointment is proposed. After getting approval of his appointment at the TC he will be appointed by the TC Chair, normally issuing Certificate of Appointment.

* TC Chair

The TC Chairman must be recommended by the TC, normally through election by voting at the TC. The Chairman must be a member of the TC, accepted by his relevant IFIP Member society. He shall serve for a term of three years and may be re-appointed for one additional term.

* TC officers

The TC Chair may designate a Vice Chair and a Secretary with approval of the TC. The Vice Chair must be a TC member. He shall serve for a term of three years, and he may be re-elected twice. The term of the Secretary is three years, and he may be re-appointed by the TC Chair. A Secretary can serve up to three terms, if a newly-elected TC Chair appoints him as his Secretary.

[N.B.] Note that “renewable without any limit” in the current Bylaws has been removed to invite more people into IFIP activities.

Also, it has been suggested to have a age limit

“A TC member (including officers but not including Distinguished Fellow members) must be younger than 65 years old at the time of his appointment”

to encourage more involvements of younger people.

* A similar revision may be also considered for WG rules.

4. Working Group Activities

The activities of Working Groups form the most important parts of TC1 activities, together with TCS Conferences. Currently, TC1 has seven working groups, and their activity reports are attached in **Appendix I**. Besides WG1.5 on Cellular Automata and Machines all WGs have been active in continuing their activities. Below attached their short summary together with some brief comments along with discussions at the Berlin Meeting (where the need of assessment of activities of the TC and WGs was stressed).

[WG1.1](Chair: J.F. Traub)

This WG continues two meetings regularly, having conference sessions and workshops every year since its establishment in 1992. Besides the area of Continuous Algorithms and Complexity this WG is expanding its activities to cover a new area of continuous quantum computing.

It is hoped that the interesting activities of this WG will be expanded so as to get a wider popularity in the CS community. This would be an important role of the next WG Chair, who is being sought since the current WG Chair is in its third term, exceeding its term limit.

[WG1.2](Chair: D. Wotschke)

This WG has been one of the most active WGs, organizing its WG meetings and workshops regularly and publishing selected papers of workshops as special issues of journals every year. The WG is going to focus their attention on the descriptorial complexity of membrane computing and quantum computing.

The number of WG1.2 members is more than 100, having many distinguished scholars. It is not clear if all of them are active or only a limited number of WG members are active. It may be good to check and restructure WG1.5 at the occasion of finding a new WG Chair, who is being sought since the current Chair is in its third term, exceeding its term limit.

[WG1.3](Chair: J.L. Fiadeiro)

J.L. Fiadeiro has been appointed as the new WG Chair on January 1st, 2004. During the chairmanship by the past Chair P.D. Mosses this WG has actively worked on "CASL: the Common Algebraic Specification Language", publishing a book on CASL (two volumes of Springer LNCS-IFIP Series; a User Manual, and a Reference Manual). This WG organizes its meetings every 9 months regularly, and they are well-attended by WG members and observers. Also, the WG collaborates in organizing workshops on formal specification. It is expected that the excellent activities of this WG would be continued under the leadership of the new WG Chair.

[WG1.4](Chair: A. Sharma)

The activities of this WG have been actively continued in connection with ALT (International Conference on Algorithmic Learning Theory) and COLT (International Conference on Learning Theory). The WG is currently working on reorganization of the WG.

[WG1.5](Chair:<vacant>)

The past WG Chair (G. Mauri) resigned, taking into account some confusing status that has happened during his chairmanship. The past WG Chair has been too busy to serve as the WG Chair, and he has lost his interest in promoting WG1.5 activities. So, no activity report has been provided (at least) since 2002, and moreover the Chair and Vice Chair were not involved in WG1.5 activities since 2002. Then, the WG1.5 has got into troubles with separation of WG members into two groups. Both groups have elected their WG chair candidates; one group has also proposed change of WG names, expanding its aims and scope so as to

encompass Discrete Models of Complex Systems. Two elected candidates have not been active in past WG1.5 activities according to the records that the TC1 Chair has examined. Two groups is in a competing situation that they would not be able to collaborate friendly according to the current circumstances. Also, a respected researcher on Cellular Automata had resigned from a TC1 member in 2002.

Under the current circumstances it would be better to resolve WG1.5 and to call for a good proposal for filling in WG1.5 that we can expect active and healthy IFIP activities.

[WG1.6](Chair: C. Kirchner)

This WG meets regularly at the time of RTA (Int'l Conf. on Rewriting Techniques and Applications).

One of the important activities of the WG has been the dissemination of the latest important results in the domain of WG1.6. At the WG meeting held at Valencia on June 12, 2003 there were four talks to introduce new high-level results. Also, at the meeting four new members have been proposed and approved at the WG level; they are to be approved at the TC1 e-mail meeting in mid-March, 2004.

[WG1.7](Chair: R. Gorrieri)

This WG is also active in organizing several workshops every year and in publishing some of their proceedings. Two new WG members are appointed, and the WG is considering removal of several inactive members at the next WG (to be held in March, 2004).

Since the Security Issues in the internet society are rapidly increasing its importance in the global world of networking. It is expected to expand and encompass widely the research activities not only within Europe & US but also to other areas and communities in the world.

5. TCS 2004 Conference

The TCS 2004 Conference will be organized as a subconference of WCC 2004. The Conference Chair and the Program Committee Chairs are as follows:

TCS 2004 Conference Chair: Jean-Jacques Levy (INRIA & Ecole Polytechniques, France)

TCS 2004 Track (1) Program Chair: Ernst W. Mayr (Technische Universitat Munchen, Germany)

TCS 2004 Track (2) Program Chair: John C. Mitchell (Stanford University, USA)

TCS 2004 Conference has affected and suffered significantly by the failures of TCS2002 at Montreal. Under the current circumstances the deadline for submissions has been extended to March 31st, 2004. Now the above Chairs are working in deciding their invited speakers for TCS 2004.

According to the Conference Chair they will be well supported by INRIA for organizing TCS 2004. This is a nice news; thanks for INRIA and Professor J.-J. Levy for their efforts and collaboration.

[N.B.] A revised CFP of TCS2004 with the extended deadline for submission is attached in **Appendix II**.

APPENDIX I: Activity Reports of WGs

[WG1.1] Report of WG on Continuous Algorithms and Complexity

WG 1.1 on Continuous Algorithms and Complexity

(Chair: Joseph F. Traub; Secretary: G. Werschulz)

There were two major meetings in 2003. A number of the sessions at ICIAM, which was held in Sydney in July 2003, were on Continuous Algorithms and Complexity. Professor Harold Niederreiter presented a plenary lecture on this topic at the conference. The second meeting was the Monte Carlo conference held in Berlin in September 2003. Again, a substantial part of this meeting was on Continuous Algorithms and Complexity.

There will be a conference on Modern Computational Methods in Applied Mathematics in Bedlewo, Poland in 2004. A substantial part of this conference will be on continuous algorithms and complexity. There will be a workshop at Schloss Dagstuhl, Germany in September, 2004. This workshop is limited to only 40 leading researchers chosen from all over the world. One of the main topics will be quantum computing.

The members of WG 1.1 stay in touch via CAC-NET. This is an electronic newsletter which is sent to over 250 people.

[WG1.2] Report of WG 1.2 on Descriptive Complexity

Chair: Prof. Detlef Wotschke, University of Frankfurt, Frankfurt, Germany

Vice-Chairs: Prof. Helmut Juergensen, University of Potsdam, Germany,

University of Western Ontario, London, Canada

Dr. Chandra Kintala, Vice-President, AVAYA Labs Research, Basking Ridge, NJ,

USA

Secretary: Bettina Sunckel, University of Frankfurt, Frankfurt, Germany

Overview of WG activities:

Descriptive complexity has historically been a multidisciplinary area of study, with contributions from automata theory, computational complexity, cryptography, information theory, probability, statistics, pattern recognition, machine learning, computational learning theory, computer vision, neural networks, formal languages and other fields. The aims of the working group are therefore to promote research in all aspects of descriptive complexity through conferences, publications, and more informal means of scientific interaction such as electronic news groups. In 2002-2004 particular emphasis was and is being placed on the descriptive complexity of bio-inspired computing models and the

relationship between descriptonal complexity and software reliability.

Meetings of WG: (List of WG meetings held in 2003 - 2004)

A WG 1.2 meeting was held at the occasion of DCFS'2003 - International Workshop on Descriptonal Complexity of Formal Systems, Budapest, Hungary, July 12-14, 2003.

The next WG 1.2 meeting will be held in conjunction with the International Workshop "Grammar Systems Week 2004", Budapest, Hungary, July 5-9, 2004.

Another WG 1.2 meeting will be held in conjunction with the International Workshop on Descriptonal Complexity of Formal Systems, London/Ontario, Canada, July 26 - July 28, 2004.

Changes in WG Membership: None

WG Activities:

Descriptonal complexity has historically been a multidisciplinary area of study, with contributions from automata theory, computational complexity, cryptography, information theory, probability, statistics, pattern recognition, machine learning, computational learning theory, computer vision, neural networks, formal languages and other fields. The aims of the working group are therefore to promote research in all aspects of descriptonal complexity through conferences, publications, and more informal means of scientific interaction such as electronic news groups.

Furthermore the WG tries to promote interaction and the exchange of information across traditional discipline boundaries and to provide a point of contact for all researchers in all disciplines interested in descriptonal complexity and its applications.

The scope of the working group encompasses all aspects of descriptonal complexity, both theory and application. These aspects include but are not limited to

- descriptonal complexity of formal systems and structures
- various measures of descriptonal complexity of automata, grammars, languages and of related systems
- trade-offs between descriptonal complexity and mode of operation
- circuit complexity of Boolean functions and related measures
- succinctness of description of (finite) objects
- descriptonal complexity in resource-bounded or structure-bounded environments
- structural complexity
- descriptonal complexity of formal systems for applications(e.g. software reliability, software and hardware testing, modelling of natural languages)
- descriptonal complexity aspects of nature-motivated (bio-inspired) architectures and unconventional models of computing

WG Events:

Events held (2002 - 2004):

- DCFS'2002 - Workshop on Descriptive Complexity of Formal Systems, London, Ontario, Canada, August 21-24, 2002, organized by Prof. Juergen Dassow, Prof. Helmut Juergensen and Prof. Detlef Wotschke

Number of participants: 38

Publication:

- Conference Proceedings (University of Western Ontario, edited by Helmut Juergensen, Juergen Dassow, Detlef Wotschke)
- Special issue in Journal of Automata, Languages and Combinatorics, will appear in Spring 2004
- DCFS'2003 - Workshop on Descriptive Complexity of Formal Systems, Budapest, Hungary, July 12-14, 2003, in cooperation with DLT'2003, organized by Prof. Csuhaj-Varhu and Prof. Detlef Wotschke

Number of participants: 35

Publication:

- Conference Proceedings (Computer and Automation Research Institute (SZTAKI) of the Hungarian Academy of Sciences (MTA), edited by Erzsebet Csuhaj-Varhu and Detlef Wotschke)
- Special issue of selected papers in TCS, will appear in Spring 2004

Future events:

- International Workshop "Grammar Systems Week 2004", Budapest, Hungary, July 5-9 2004 (in cooperation with the European Molecular Computing Consortium)
- DCFS'2004 - International Workshop on Descriptive Complexity of Formal Systems, London/Ontario, Canada, July 26 - July 28, 2004

Planned events:

- International Workshop on Descriptive Complexity and Mathematical Linguistics, planned for September 2004
- International Workshop on Kolmogorov Complexity and its Applications, planned for early 2005
- DCFS'2005 - International Workshop on Descriptive Complexity of Formal Systems, July or August 2005, probably in Germany

Related events in 2003 - 2004:

- DLT'2003 - 7th International Conference on Developments in Language Theory, Szeged, Hungary, July 7 - 11, 2003
- CIAA'2003 - 8th International Conference on Implementation and Application of Automata, University of California at Santa Barbara, California, USA, July 16 - 18, 2003

- CIAA'2004 - 9th International Conference on Implementation and Application of Automata, Queen's University, Kingston, Ontario, Canada, July 22 - 24, 2004
- DLT'2004 - 8th International Conference on Developments in Language Theory, December 2004, Auckland, New Zealand

Publications:

- 1) A selection of papers of
DCAGRS'99 - Descriptive Complexity of Automata, Grammars and Related Structures, Magdeburg, Germany, July 1999, which was held by WG1.2, appeared as a special issue in
Journal of Automata, Languages and Combinatorics, Vol. 5, No. 3,
Editors: J. Dassow and D. Wotschke, Otto-von-Guericke-Universitaet Magdeburg, 2000.
- 2) A selection of papers of
DCAGRS'2000 - Descriptive Complexity of Automata, Grammars and Related Structures, London, Ontario, Canada, July 2000, which was held by WG 1.2, appeared as a special issue in
Journal of Automata, Languages and Combinatorics, Vol. 6, No. 4, Editors: J. Dassow, H. Juergensen and D. Wotschke, Otto-von-Guericke-Universitaet Magdeburg, 2001.
- 3) A selection of papers of
DCAGRS'2001 - Descriptive Complexity of Automata, Grammars and Related Structures, Vienna, Austria, July 2001, which was held by WG 1.2, appeared as a special issue in
Journal of Automata, Languages and Combinatorics, Vol. 7, No. 4, Editors: J. Dassow and D. Wotschke, Otto-von-Guericke-Universitaet Magdeburg, 2002.
- 4) A selection of papers of
DCFS'2002 - Workshop on Descriptive Complexity of Formal Systems, London, Ontario, Canada, August 2002, which was held by WG 1.2, will appear as a special issue in
Journal of Automata, Languages and Combinatorics, in Spring 2004.
- 5) A selection of papers of
DCFS'2003 - Workshop on Descriptive Complexity of Formal Systems, Budapest, Hungary, July 12-14, 2003, which was held by WG 1.2,
will appear as a special issue in
Theoretical Computer Science, in Spring 2004.

Comments on Status of WG:

Next to its regular topics, WG 1.2 is currently paying particular attention to descriptive complexity of grammar and related systems and will focus as one of its next projects on the

descriptive complexity of membrane computing and quantum computing.

[WG1.3] Report of WG on Foundations of System Specification

WG chair: José Luiz Fiadeiro

WG Secretary: Christine Choppy

Overview of WG activities:

The primary activities of WG1.3 since March 2003 concerned:

- CoFI (Common Framework Initiative);
- WADT-CMCS cooperation framework

Meetings of WG:

- * Cala Galdana, Menorca (Spain), 1-4 June 2003

Changes in WG Membership:

- * New Member: Dominique Duval
- * New Member Emeritus: Eric Wagner
- * Resignations: Jean-Pierre Jouannaud
- * Peter Mosses's term of office as chair terminated at the end of 2003

WG Activities:

The WG1.3 activities during the past year included publication of a book on CASL, the Common Algebraic Specification Language, the design of which was proposed by CoFI (the Common Framework Initiative for algebraic specification and development) and subsequently approved by WG1.3. The CASL book is published by Springer as two volumes of LNCS (IFIP Series): a User Manual (XIII+240 pages, January 2004) and a Reference Manual (XVIII+528 pages, March 2004), both with accompanying CD-ROMs.

Plans were made for a tighter coordination between the "algebraic" (WADT) and "co-algebraic" (CMCS) research communities, with the possibility of putting in place a new biannual conference covering both areas with the support of WG1.3. Concrete proposals will be discussed at the WG1.3 meeting on March 26, 2004.

WG Events: (Events closely related and affiliated to WG)

Publications:

- * Michel Bidoit and Peter D. Mosses.
CASL User Manual, LNCS Vol. 2900 (IFIP Series). Springer, January 2004.
With chapters by Till Mossakowski, Donald Sannella, and Andrzej Tarlecki.
- * CoFI (The Common Framework Initiative).
CASL Reference Manual, LNCS Vol. 2960 (IFIP Series). Springer, March 2004.
Edited by Peter D. Mosses.

Comments on Status of WG:

At its General Meeting in Cala Galdana (June 2003), WG1.3 members were unanimous in recognising that, under the chairmanship of Prof. Peter Mosses, WG1.3 has made a decisive contribution to the consolidation of the algebraic approach to system specification, namely in connection with CoFI and the design of the Common Algebraic Specification Language. The publication of the CASL Book should reinforce the position of CASL (with its sub-languages and extensions) as an emerging de facto standard formalism for algebraic specification. Proposals for extension languages are submitted to WG1.3 for approval.

WG1.3 has also increased its activities regarding other approaches to system specification, such as graph transformation, and the co-algebraic approach. The background and interests of several of the new members elected in recent years reflects this trend of increasing breadth.

WG1.3 meetings are held every 9 months (every other meeting held in conjunction with WADT), which entails a rotation in the time of year of meetings. As a rule, talks last about 60 minutes, with plenty of discussion. The meetings are generally well-attended by members and observers alike. Due partly to its engagement in the CoFI and WADT activities, WG1.3 has not yet organized official IFIP events.

During 2004, WG1.3 will continue supporting events like WADT, CMCS and ICGT. It will also act as a "culture" in which the synergies between the "algebraic" (WADT) and "co-algebraic" (CMCS) research communities can develop and lead to a more mature scientific discipline. Concrete steps will also be taken to reach the communities outside the EU and US, namely towards Asia (mainly India and China).

[WG1.4] Report of WG on Computational Learning Theory

Chair: A. Sharma

Secretary: P. Vitanyi

The most recent event in the learning theory calendar was ALT'03 (The 14th International Conference on Algorithmic Learning Theory) held at Hokkaido University in Sapporo, Japan during October 17-19, 2002. ALT'03 was again collocated with DS'03 (International Conference on Discovery Science), as the practice of collocating a theoretical conference in learning with a practical conference has worked very well. The two conferences shared invited speakers. They were: Naftali Tishby (Hebrew University), Thomas Eiter (Vienna University of Technology), Akihiko Takano (National Institute of Informatics) and Thomas Zeugmann (University of Luebeck). The E.M. Gold Award Winner for the best student paper at ALT'03 was given to Sandra Zilles for her paper "Intrinsic Complexity of Uniform Learning".

The two forthcoming events on the learning theory calendar are COLT'04 and ALT'04. COLT'04 (The 17th Annual Conference on Learning Theory) will be held in Banff, Canada during July 1-4, 2004. ALT'04 (The 15th International Conference on Learning Theory) will be held at Padova University, Italy during October 2-5, 2004.

The main priority for 2004 is the reorganization of the Working Group membership. This was introduced as an agenda item at the COLT'03 steering committee meeting in Washington, DC and also discussed with key members of the ALT steering committee at Sapporo during ALT'03.

The plan for the change is as follows:

1. A proposal to be circulated to the current Working Group membership in March 2004
2. The subject to be tabled at COLT steering committee meeting in July 2004
3. The subject to be tabled at ALT steering committee meeting in October 2004
4. A recommendation tabled to the TC1 Chair for consideration in November 2004

The TC1 Chair will be kept updated with the progress with these matters during the entire year.

[WG1.6] Report of WG on Term Rewriting

WG Chair: Claude Kirchner

WG Secretary: Laurent Vigneron

Overview of WG activities:

The main activities of the WG are the dissemination of the most important results of our domain (presentations at the WG meeting, creation of dedicated working groups, use of the web site and the mailing-list), the discussion of the orientations to be considered, and the synchronisation of the different events (conferences and workshops).

Meetings of WG: Fifth Workshop of the IFIP WG-1.6 on Term Rewriting,
Valencia, Spain, June 12, 2003

Changes in WG Membership: New members to be appointed after approval of TC1

J. Giesl (DE); B. Gramlich (AT); F. van Raamsdonk (NL); S. Lucas (ES)

WG Activities:

All the year long, the WG web page (rewriting.loria.fr/IFIP-WG1.6/) is used for announcing the main events and it is maintained together with the Rewriting

Home Page (rewriting.loria.fr) that contains the list of research groups working in the domain, the list of researchers, the history of past and future events, the list of the main softwares, some surveys, books and courses, an online bibliography, and a list of open problems.

On June 12, 2003, has been held the fifth workshop of the WG. It has been the occasion for the presentation of four new high-level results in term rewriting:

- Automating the Dependency Pair Method, by Aart Middeldorp
- Simpler Congruence Closure, by Robert Nieuwenhuis
- Optimal implementation of the lambda-calculus, by Vincent van Oostrom
- Can addresses be types? (a case study: objects with delegation),

by Franco Barbanera

and the presentation of the recent activities of nine groups:

- ENS-Cachan, by Hubert Comon
- Amsterdam, by Femke van Raamsdonk
- Eindhoven, by Hans Zantema
- SRI, by José Meseguer
- Tel Aviv, by Nachum Dershowitz
- Vienna, by Bernhard Gramlich
- Valencia, by Salvador Lucas
- Madrid, by Mario Rodríguez-Artalejo
- Nancy, by Michaël Rusinowitch, and H el ene and Claude Kirchner

In this meeting, the creation of QPQ ("QED Pro Quo", www.qpq.org) has been announced. This is an online journal for publishing peer-reviewed source code for deductive software components.

WG Events:

- The 14th International Conference on Rewriting Techniques and Applications (RTA)
June 9-11, 2003, Valencia, Spain.
PC chair: R. Nieuwenhuis (Spain)
Conference Chair: S. Lucas (Spain)
104 participants; proceedings: LNCS vol. 2706 (Springer)
- The 4th Workshop on Rule-Based Programming (Rule'03),
June 9, 2003, Valencia, Spain.
PC chairs: J.-L. Giavitto and P.-E. Moreau (France)
34 participants; post-proceedings: ENTCS vol. 86 (Elsevier)
- The 3rd Workshop on Reduction Strategies in Rewriting and Programming (WRS'03)
June 8, 2003, Valencia, Spain.
PC chairs: B. Gramlich (Austria) and S. Lucas (Spain)
46 participants; post-proceedings: ENTCS vol. 86 (Elsevier)
- The 6th Workshop on Termination (WST'03)
June 13-14, 2003, Valencia, Spain.
PC chair: A. Rubio (Spain)
53 participants; proceedings: technical report (Valencia)

WG Future Events:

The 5th International Workshop on Rewriting Logic and its Applications (WRLA) will be held in conjunction with the 7th European Joint Conferences on Theory and Practice of Software (ETAPS) in Barcelona, Spain, March 27-28, 2004.

The Federated Conference on Rewriting, Deduction, and Programming (RDP) will hold in Aachen, Germany, from May 31 to June 5, 2004. It will include the following events:

- The 15th International Conference on Rewriting Techniques and Applications (RTA).
- The 5th Workshop on Rule-Based Programming (Rule'2004).
- The 4th Workshop on Reduction Strategies in Rewriting and Programming (WRS'2004).
- The 7th Workshop on Termination (WST'2004).
- The 6th workshop of the IFIP WG 1.6 on Term Rewriting.

The sixth Workshop of the IFIP WG-1.6 on Term Rewriting will be part of RDP 2004, on May 31.

Publications (Books):

- Advanced Topics in Term Rewriting, by Enno Ohlebusch,
Springer Verlag, April 2002 ISBN: 0387952500
- Term Rewriting Systems, by Terese,
Cambridge University Press, March 2003
ISBN: 0521391156

[WG1.7] Report of WG on Foundations of Security Analysis and Design

WG chair: Roberto Gorrieri

WG secretary: Riccardo Focardi

Overview of WG activities:

organisation of several workshops and publications of a book and
journal special issues

Meetings of WG: one meeting in Barcelona, April 5, 2004

Changes in WG Membership:

New members: Jan Juriens (D), Jean-Jacques Quisquater (B)

Inactive members that will be removed if they do not appear at the

next meeting: B. Jonsson (Sweden), U. Maurer (CH), Y. Moses (IL).

WG Activities: organisation of several workshops and publications of a book and journal
special issues

WG Events:

- WITS: Workshop on Issues in the Theory of Security (WITS '04) 5-6 April 2004,
Barcelona, Spain, as a satellite event of ETAPS 2004, organizer: Peter Ryan;
http://www.dsi.unive.it/IFIPWG1_7/wits2004.html.
- WISP: Workshop on Issues in Security and Petri Nets, Bologna (Italy), 26 June 2004
organisers: R.Gorrieri, N.Busi and F.Martinelli
publication: ENTCS volume

<http://www.iit.cnr.it/staff/fabio.martinelli/WISP2004cfp.htm>

- FAST: Workshop on Formal Aspects in Security & Trust (FAST), Toulouse, France, 27 August 2004

organiser: F. Martinelli

publication: ENTCS volume

<http://www.iit.cnr.it/FAST2004>

- FOSAD: International School on Foundations of Security Analysis and Design, 6-11 September 2004, Bertinoro, Italy (scientific coordinators: A. Aldini, R.Gorrieri, F.Martinelli, A.Sabelfeld)

<http://www.sti.uniurb.it/events/fosad>

Publications:

- Springer LNCS-Tutorials volume 2946 with a collection of tutorial papers covering all the main courses of the FOSAD school for the years 2001 and 2002.
- Special issue of the journal TCS, edited by R.Gorrieri, on "Foundations of Security Analysis and Design" is planned to be published at the end of the year.

Comments on Status of WG:

The WG is rather healthy and several activities take place and new ones are starting.

All the activities produce no real economic income for the WG as they are

organized freely. However, the visibility of the WG and its influence is increasing every year.

Appendix II: Call For Papers of TCS 2004

3RD CALL FOR PAPERS -- TCS 2004

3rd IFIP International Conference on Theoretical
Computer Science (Foundations of Global Computing)
August 23-26, 2004, Toulouse, France

URL: <http://jeanjacqueslevy.net/TCS2004>

TCS2004 will be held as part of the IFIP 2004 World Computer Congress.

TCS2004 will be composed of two distinct, but interrelated tracks:

Track 1 Algorithms, Complexity and Models of Computation,

Track 2 Logic, Semantics, Specification and Verification.

Submissions are limited to 14 A4 pages, in 11 point or larger font, LNCS style.

The Proceedings will be published by Kluwer, the official publisher of IFIP. For detailed information, please visit the web site.

IMPORTANT DATES

Submission: March 31, 2004 <----- NEW DATE

Notification: April 21, 2004

Given the very short delay between the dates for submission and for notification of acceptance, authors are asked to submit final versions of their articles. Authors are strongly encouraged to submit papers before the deadline for submission.

The IFIP TCS2004 conference is sponsored by IFIP TC1 on Foundations of Computer Science in cooperation with SIGACT, EATCS and INRIA. The IFIP World Computer Congress has 60 grants of 500 euros each which can be awarded to students presenting a paper at one of the congress event.

PROGRAM COMMITTEE

Track 1:

Farid Ablayev, Hagit Attiya, Sorin Istrail, Stefano Leonardi, Maurice Margenstern, Ernt Mayr (**chair**), Satoru Miyano, Jean-Eric Pin, Nicola Santoro, Thomas Schwentick, Sandeep Sen, Subhash Suri, Osamu Watanabe

Track 2:

Roberto Amadio, Luca Cardelli, Giuseppe Castagna, Hubert Comon-Lundh, Adriana Compagnoni, Drew Dean, Marcelo Fiore, Giorgio Ghelli, Martin Hofmann, Alan Jeffrey, Bruce Kapron, Orna Kupferman, John Mitchell (**chair**),

George Necula, Catuscia Palamidessi, Martin Rinard, Davide Sangiorgi,
Vladimiro Sassone, Vitaly Shmatikov, Martin Wirsing

LIST OF AREAS

Track 1 (Algorithms, Complexity and Models of Computation):

Analysis and design of algorithms, Automata and formal languages, Cellular automata and systems, Combinatorial, graph and optimization algorithms, Computational and mathematical finance, Computational learning theory, Continuous algorithms and complexity, Computational complexity, Computational geometry, Cryptography, Distributed computing, Descriptive complexity, Evolutionary and genetic computing, Experimental algorithms, Mobile computing, Molecular computing and algorithmic aspects of bioinformatics, Network computing, Neural computing, Parallel and distributed algorithms, Probabilistic and randomized algorithms, Quantum computing, Structural information and communication complexity

Track 2 (Logic, Semantics, Specification and Verification):

Concurrency theory, Constructive and non-standard logics in computer science, Foundations of global computing, Foundations of mobile computing, Foundations of security, Foundations of system specification, Foundations of wide area programming, Logic and semantics for programs and languages, Logic, specification and verification of hybrid and real-time systems, Proofs and specifications in computer science, Term rewriting systems, Theoretical aspects of software concepts, Theoretical aspects of specification, and verification of hardware and software, Theoretical foundations of databases, Theoretical foundations of open systems, Theory of Internet languages and systems, Theory of parallel and distributed systems, Type and category theory in computer science.

SPECIAL FOCUS

The IFIP TCS2004 conference will have a special focus on Foundations of Global Computing. Original and significant contributions on the special focus and on foundational questions are sought from all areas of theoretical computer science.

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