

IFIP General Assembly, Colombo (Sri Lanka), 12–13 September 2017

## TC1 “Foundations of Computer Science” Activity Report

*Jacques Sakarovitch, TC1 chair*

### 1 TC1 News

#### Membership

Prof. Lutz Schröder is became ex-officio member in replacement of Prof. Markus Roggenbach on 1 July 2017, Prof. Martin Kutrib in replacement of Prof. Giovanni Pighizinni on 1 August 2017 (see below).

TC1 web page: [ifip-tc1.org](http://ifip-tc1.org) gives an up-to-date member list; IFIP web page: [www.ifip.org/bulletin/bulltcs/memtc01.htm](http://www.ifip.org/bulletin/bulltcs/memtc01.htm) gives the member list for every Working Group as well.

#### Secretary

TC1 is still missing a secretary.

#### Working Group administration

Prof. Martin Kutrib has been elected as chair of WG 1.02, and Prof. Rogério Reis vice-chair in replacement of Prof. Giovanni Pighizinni, who served two terms, and of Prof. Helmut Jürgensen, respectively.

Chair Markus Roggenbach and vice-chair Lutz Schröder of WG 1.03 have exchanged their posiiton on 1 July 2017

### 2 Working Groups News

The list and the activity reports of the eight working groups of TC1 is to be found in the following appendix.

The preceding year had been marked with a substantial renewal in working groups, with the election of 4 new chairs (out of 8), departure of older or inactive members and appointment of new members. In comparison, this year is more steady with only one election of chair, 10 new members, 5 leaving, and 1 nomination as honorary member in total.

Working Groups are the place where the scientific activity of TC1 takes places. They all have either their own flagship conferences (WG 1.02, 1.03, 1.05) or they are deeply involved in the organisation of conferences with which they colocate their own workshops and business meetings (WG 1.03, 1.06, 1.07, 1.08, 1.09, 1.10). After the discussion at the 2015 business meetings, four of these conferences are now regularly registred as IFIP event, which is a significant increase from the past.

The WG activity reports, and their web pages give a good account of the problems that their communities are currently tackling.

# Appendix A

## Reports from Working Groups

Prof. Martin Kutrib (Giessen, Germany) and Prof. Rogrio Reis (Porto, Portugal) have been appointed chair and vice-chair of WG 1.02 on 1 August 2017, in replacement of Prof. Giovanni Pighizinni and Prof. Helmut Jrgensen.

Prof. Markus Roggenbach (Swansea, UK) and Prof. Lutz Schrder (Erlangen, Germany) have exchanged their position of Chair and Vice-chair of WG 1.03 on 1 July 2017 as it had been agreed at the time of their election.

The list of Working Groups of TC1, with their chairs, vice-chairs and secretaries as of 1 September 2017, is thus established as follows.

		WG Chairs/Vice-Chairs		WG Secretaries	
1.02	Descriptive Complexity	Martin Kutrib	Martin.Kutrib@informatik.uni-giessen.de	Andreas Malcher	andreas.malcher@informatik.uni-giessen.de
		Rogério Reis	rvr@dcc.fc.up.pt		
1.03	Foundations of System Specification	Lutz Schröder	lutz.schroeder@fau.de		
		Markus Roggenbach	m.roggenbach@swan.ac.uk		
1.05	Cellular Automata and Discrete Complex Systems	Pedro P. B. de Oliveira	pedrob@mackenzie.br	Katsunobu Imai	imai@hiroshima-u.ac.jp
		Nazim Fatès	nazim.fates@loria.fr		
1.06	Term Rewriting	Georg Moser	georg.moser@uibk.ac.at	Ugo Dal Lago	dallago@cs.unibo.it
1.07	Theoretical Foundations of Security Analysis and Design	Riccardo Focardi	focardi@dsi.unive.it	Luca Viganò	luca.vigano@kcl.ac.uk
		Véronique Cortier	cortier@loria.fr		
1.08	Concurrency Theory	Iliaria Castellani	ilaria.castellani@inria.fr	Mohammad Reza Mousavi	m.r.mousavi@hh.se
1.09 2.15	Verified Software	Jean-Christophe Filliâtre	jean-christophe.filliatre@lri.fr	Natarajan Shankar	shankar@csl.sri.com
1.10	String Algorithms & Applications	Costas Iliopoulos	costas.ilopoulos@kcl.ac.uk	Bill Smyth	smyth@mcmaster.ca

The period covered by the reports is essentially 1 July 2016 – 1 July 2017

## WG 1.02 — Descriptive Complexity

**Chair:** Prof. Giovanni Pighizzini, Università degli Studi di Milano, Italy

**Vice-Chair:** Prof. Helmut Jürgensen, University of Western Ontario, London, Canada

**Secretary:** Dr. Andreas Malcher, Universität Giessen, Germany

**Home page:** [www.informatik.uni-giessen.de/ifipwg1.2](http://www.informatik.uni-giessen.de/ifipwg1.2)

### 2016-17 BRIEF ACTIVITY REPORT

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. Since 2002 particular emphasis was and is being placed on the descriptive complexity of bio-inspired computing models and the relationship between descriptive complexity and software reliability.

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

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

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 descriptive complexity and its applications.

## Organisation of WG and Membership

### Chairpersonship

Prof. Giovanni Pighizzini, Università degli Studi di Milano, Italy

The current chair has served for two terms from 2011-2014 and 2015-2017, and it was not possible according to the IFIP rules to reelect him for another term. During the WG meeting on July 3, 2017, in Milano, Prof. Martin Kutrib, Universität Giessen, Germany, was elected as new WG chair and Prof. Rogério Reis Universidade do Porto, Portugal as new Vice-Chair.

### New members

No changes during this period.

## Scientific activities and meetings

### Events organised by the Working Group

- *18th International Conference on Descriptive Complexity of Formal Systems (DCFS 2018), Bucharest, Romania, July 5-8, 2016 (IFIP Working Conference).* The conference was organized, under supervision of the DCFS steering committee, by Radu Gramatovici (University of Bucharest). The PC co-chairs were Cezar Câmpeanu (Charlottetown/PE, Canada), Florin Manea (Kiel, Germany), and Jeffrey Shallit (Waterloo, Canada). The scientific part was consisting of 4 invited lectures, 13 regular contributions, selected by a program committee after a standard reviewing process, and one open problem session. The proceedings have been published on LNCS series. A special issue of the Journal of Automata, Languages and Combinatorics, devoted to extended versions of selected papers has been prepared and it is expected to be published in 2017. Around 40 participants attended the conference. Many of them are members of the WG.
- *19th International Conference on Descriptive Complexity of Formal Systems (DCFS 2018), Milano, Italy, July 3-5, 2017 (IFIP Working Conference).* The conference was organized, under supervision of the DCFS steering committee, by Giovanni Pighizzini (University of Milano), who was PC co-chair with Cezar Câmpeanu (Charlottetown/PE, Canada). The scientific part was consisting of 4 invited lectures, 20 regular contributions, selected by a program committee after a standard reviewing process. The proceedings have been published on LNCS series. A special issue of the International Journal of Foundations of Computer Science, devoted to extended versions of selected papers is planned. Around 40 participants attended the conference. Many of them are members of the WG.

### Formal meetings of the Working Group

- July 8, 2016, on the occasion of DCFS 2016.
- July 3, 2017, on the occasion of DCFS 2017.

## **Forthcoming events**

- *20th International Conference on Descriptive Complexity of Formal Systems (DCFS 2018)*.

The conference will be held, likely in late July 2018, in Halifax, Canada, and it will be organized by Stavros Konstantinidis.

## **Publications**

- Cezar Câmpeanu, Florin Manea, Jeffrey Shallit (eds.): *Descriptive Complexity of Formal Systems - 18th IFIP WG 1.2 International Conference, DCFS 2016*, Bucharest, Romania, July 5-8, 2016. *Proceedings*. *Lecture Notes in Computer Science 9777*, Springer 2016, ISBN 978-3-319-41113-2
- Giovanni Pighizzini, Cezar Câmpeanu (eds.): *Descriptive Complexity of Formal Systems - 19th IFIP WG 1.02 International Conference, DCFS 2017*, Milano, Italy, July 3-5, 2017, *Proceedings*. *Lecture Notes in Computer Science 10316*, Springer 2017, ISBN 978-3-319-60251-6

## WG 1.03 — Foundations of System Specification

**Chair:** Prof. Lutz Schröder,  
Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

**Vice-Chair:** Prof. Markus Roggenbach, Swansea University, United Kingdom

**Home page:** [ifipwg13.cs.ovgu.de](http://ifipwg13.cs.ovgu.de)

## Organisation of WG and Membership

### Meetings

A formal WG meeting was held on January 9–12, 2017, in Binz (Rügen), Germany. The next meetings will be held on September 4–5, 2017, in Berlin, Germany, and on June 30 and July 1, 2018, in Royal Holloway, in colocation with the *24th International Workshop on Algebraic Development Techniques, WADT 2018*.

### Chairpersonship

Effective July 1, 2017, the chair Markus Roggenbach stepped down to assume the role of vice-chair, and the previous vice-chair Lutz Schröder became chair, following a rota agreed at the 2016 meeting in Eindhoven and confirmed at the 2017 meeting in Binz.

### Changes in WG Membership

Prof. Tom Maibaum, McMaster University, has been granted emeritus membership. Stefania Gnesi has resigned from the group, and the membership of Grigore Rosu has been revoked by the group due to lack of attendance. The group welcomes Filippo Bonchi, CNRS and ENS de Lyon, as a new member.

## Scientific Activities and Meetings

### Recent and Forthcoming Events Related to the Working Group

- The *7th Conference on Algebra and Coalgebra in Computer Science, CALCO 2017* was held on June 14–16, 2017, in Ljubljana, Slovenia, in colocation with the 33rd Conference on Mathematical Foundations of Programming Semantics, MFPS XXXIII. The next edition of the conference will be held in 2019.
- The *10th International Conference on Graph Transformation, ICGT 2017*, was held in Marburg, Germany, on July 17–21, 2017, as part of the federated conference *Software Technologies: Applications and Foundations (STAF)*.
- The *14th IFIP WG 1.3 International Workshop on Coalgebraic Methods in Computer Science, CMCS 2018*, will be held as a workshop at the *European Joint Conferences on Theory and Practice of Software, ETAPS 2018* in April 2018 in Thessaloniki, Greece.

- The *23rd International Workshop on Algebraic Development Techniques WADT 2016* was held in Gregynog, Wales, on September 21–24, 2016. The next edition will take place in Royal Holloway, UK, on July 5–8, 2018.

### **Further Sponsored Activities**

The Distributed Ontology, Modeling, and Specification Language (DOL), which has been developed by members of WG 1.3 and approved by WG 1.3, has been approved as a standard by the OMG; finalization is currently pending.

## WG 1.05 — Cellular Automata and Discrete Complex Systems

**Chair:** Prof. Pedro P.B. de Oliveira, Mackenzie University, São Paulo, Brazil

**Vice-Chair:** Dr. Nazim Fatès, INRIA Nancy, France

**Secretary:** Prof. Katsunobu Imai, Hiroshima University, Japan

**Home page:** [www.iec.hiroshima-u.ac.jp/ifip15](http://www.iec.hiroshima-u.ac.jp/ifip15)

### 2016-17 BRIEF ACTIVITY REPORT

The Working Group 1.5, on Cellular Automata and Discrete Complex Systems, reestablished in 2008, has the following attributions:

- To establish and maintain a permanent, international, multidisciplinary forum for the collaboration of researchers in the field of Cellular Automata (CA) and Discrete Complex Systems (DCS).
- To provide a platform for presenting and discussing new ideas and results.
- To support the development of theory and applications of CA and DCS (e.g. parallel computing, physics, biology, social sciences, and others) as long as fundamental aspects and their relations are concerned.
- To identify and study within an inter- and multidisciplinary context, the important fundamental aspects, concepts, notions and problems concerning CA and DCS.

The scope of the working group encompasses all fundamental aspects of cellular automata and discrete complex systems, including: Dynamics, Algebraic aspects, Complexity issues, Emergent properties, Formal language processing, Models of parallelism and distributed systems, Phenomenological descriptions, Scientific modeling and Practical applications.

## Organisation of WG and Membership

### Chairpersonship

The 2017 annual admin meeting of WG 1.5 took place during AUTOMATA 2017, on June 7th, with the following attendance:

**Members of the WG 1.5:** Alberto Dennunzio, Nazim Fatès (*Vice-Chair*), Enrico Formenti, Eric Goles, Pierre Guillon, Katsunobu Imai (*Secretary*), Martin Kutrib, Andreas Malcher, Giancarlo Mauri, Kenichi Morita, Pedro de Oliveira (*Chair*), Gaétan Richard, Ville Salo, Véronique Terrier and Hiroshi Umeo.

**Guests:** Alonso Castillo-Ramirez and Marcin Dembowski.

The meeting started with the Chair showing a presentation of the slides prepared by the organiser of next year's edition of AUTOMATA, which will be returning to Belgium, after 15 years; more details about the event are given below. As the slides



made it clear, the organisation will basically follow the same structure of the latest editions of AUTOMATA.

Also invited, Alonso Castillo-Ramirez then made an informal presentation for his proposal to host AUTOMATA 2019 at the University of Guadalajara, Guadalajara city, Mexico. After the meeting's attendees had the opportunity to question about practical matters, such as the infrastructure of the city and the university, and alternatives to reaching the city, Alonso was given the go-ahead with the organisation, which will be the first edition of AUTOMATA in Mexico.

## New members

The following new members had been proposed and were approved with no restriction:

- *Paola Flocchini*: Professor, School of Electrical Engineering and Computer Science, University of Ottawa, Canada.
- *Dipanwita Roy Chowdhury*: Professor, Department of Computer Science and Engineering, Indian Institute of Technology Kharagpur, India.
- *Henning Mortveit*: Associate Professor, Department of Mathematics, Virginia Tech, USA.
- *Sukanta Das*: Assistant Professor, Department of Information Technology, Indian Institute of Engineering Science and Technology, India.

## New organisation rules

As a general matter on deciding the best timing for the AUTOMATA events to happen, we reinforced that the organisers should check the schedules of related conferences, in order to avoid critical clashes for the attendees. Particularly, in respect to AUTOMATA 2018, the matter was analysed with respect to the Summer Solstice 2018 event (to be held in Gdansk, Poland), and later coordinated with the organisers of the latter that it will take place in 25-26 June, a weekend after AUTOMATA 2018, so as to facilitate attendance to both events.

Also related to future organisations of AUTOMATA, the Chair of WG 1.5 is writing a document on *Guidelines for Organising AUTOMATA*, whose first version has already been passed on to the organiser of AUTOMATA 2018. An extended version will be available soon and shared in the group's mailing list for feedbacks.

Finally, during the last year we have carried out a very careful process of membership reviewing of the group members, which included the creation of an Emeritus membership category, where 11 members have been moved to, even though some remain in our mailing list, by request. With this procedure and the new members just approved, the WG 1.5 group is now composed of 50 full members.

## Scientific activities and meetings

### Events organised by the Working Group

- AUTOMATA 2017 - The 23rd International Workshop on Cellular Automata and Discrete Complex Systems, held at Università degli Studi di Milano-Bicocca, Milan, Italy, in 7-9 June, 2017, organised by Dr. Alberto Dennunzio and Dr. Enrico

Formenti, under the auspices of the Department of Informatics, Systems and Communications (DISCo).

The event had 34 registered participants. There were 3 invited talks, 14 full paper talks and 11 exploratory paper talks, representing authors from 11 countries (Belgium, Brazil, Chile, England, Finland, France, Germany, Italy, Japan, Mexico, Poland). Further details are available in <https://automata2017.disco.unimib.it>.

### **Forthcoming events**

- AUTOMATA 2018 - The 24th International Workshop on Cellular Automata and Discrete Complex Systems, to be held at Ghent University, Ghent, Belgium, in 20-22 June 2018, organised by Dr. Jan Baetens, under the auspices of the Faculty of Bioscience Engineering.

The website of the event will be <http://www.automata2018.ugent.be>.

- AUTOMATA 2019 - The 25th International Workshop on Cellular Automata and Discrete Complex Systems, to be held at Universidad de Guadalajara, Guadalajara city, Mexico, organised by Dr. Alonso Castillo-Ramirez, under the auspices of the Departamento de Matemáticas.

### **Publications**

- A. Dennunzio, E. Formenti, L. Manzoni and A.E. Porreca (eds). Cellular Automata and Discrete Complex Systems: 23rd IFIP WG 1.5 International Workshop - Proc. of AUTOMATA 2017. *Lecture Notes in Computer Science* 10248, Springer: Heidelberg - Germany, 2017.
- A. Dennunzio and E. Formenti (eds). *Exploratory Papers of AUTOMATA 2017 - The 23rd International Workshop on Cellular Automata and Discrete Complex Systems*, 94 pages, Università degli Studi di Milano-Bicocca: Milan - Italy, 2017.

## WG 1.06 — Rewriting

**Chair:** Prof. Georg Moser, Innsbruck University, Austria

**Secretary:** Prof. Ugo Dal Lago, Bologna University, Italy

**Home page:** [cbr.uibk.ac.at/ifip-wg1.6/](http://cbr.uibk.ac.at/ifip-wg1.6/)

### 2016-17 BRIEF ACTIVITY REPORT

The Working Group aims to promote research efforts in rewriting and its applications. For that it aims to establish close cooperation between existing groups and to facilitate the emergence of new ones. It wants to increase awareness of rewriting techniques in the computer science community at large and foster development of applications of theoretical advances.

## Organisation of WG and Membership

The next meeting of the IFIP WG 1.6 will be co-located to FSCD 2017 in Oxford, September 3-6, 2017. The meeting takes place on Saturday, September 9.

### Chairpersonship

Georg Moser is acting chair of the Working Group. His term ends this year.

### New members

We have invited three speakers for the upcoming annual meeting:

- Luke Ong, University of Oxford
- Brigitte Pientka, McGill University
- Masahiko Sakai, Nagoya University

For Prof. Ong and Prof. Pientka this is the second invitation to speak at the WG. Hence it is possible that they will become members shortly after the meeting. For Prof. Sakai it is the first invitation.

## Scientific activities and meetings

From July 23 to July 27, the 9th International School on Rewriting was held in Eindhoven, Netherlands. See the School's website for further information on the organisation and success of the school.<sup>1</sup>

As briefly mentioned above, the upcoming meeting of the WG will take place in Oxford. Further information on the meeting's program can be found on the WG's homepage.<sup>2</sup>

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<sup>1</sup>See <http://www.win.tue.nl/hzantema/isr.html>.

<sup>2</sup>See <http://cbr.uibk.ac.at/ifip-wg1.6/events/event-2017.html>.

Apart from the aforementioned talks, there will be a technical talk by Dr. Vincent van Oostrom on new results on critical pairs, a crucial concept in confluence of rewriting which was invented by Knuth and Bendix in the 1970s.

A major part of the meeting will be discussions on the view of the WG on the newly created conference series “Formal Structures for Computation and Deduction” (FSCD). See below for a more detailed description of FSCD.

### **Remarkable results in the field of the WG**

The conference series FSCD has been created as a merge of former conference series “Rewriting Techniques and Applications (RTA)” as well as “Typed Lambda Calculi and Applications (TLCA)”.<sup>3</sup>

The creation of this new conference series was actively discussed and supported by the WG. Furthermore, as a consequence of its creation the WG felt the need to propose to TC to rename the WG from “Term Rewriting” into “Rewriting”.

### **Events organised by the Working Group**

- 9th International School on Rewriting, July 3-7 2017, Eindhoven, The Netherlands, organised by Femke van Raamsdonk and Hans Zantema; see <http://www.win.tue.nl/hzantema/isr.html>.

### **Forthcoming events**

- 2017 Business Meeting, Oxford, co-located to FSCD, September 9, 2017
- 10th International School on Rewriting (ISR) will be held in Cali, Colombia most probably from July 23 to 27, 2018. The school is organised by Camilo Rocha.

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<sup>3</sup>See <http://fscdconference.org/> for further details.

## **WG 1.07 — Theoretical Foundations of Security Analysis and Design**

**Chair:** Prof. Riccardo Focardi, University Ca' Foscari, Venice, Italy

**Vice-Chair:** Prof. Véronique Cortier, University of Nancy, France

**Secretary:** Prof. Luca Viganò, King's College London, UK

**Home page:** [www.dsi.unive.it/IFIPWG1.7/](http://www.dsi.unive.it/IFIPWG1.7/)

### 2016-17 BRIEF ACTIVITY REPORT

The WG 1.7 promotes activities in the area of theoretical foundations of security analysis and design, and has been established in 1999. It mainly aims at investigating the theory of security, as well as of privacy and trust, at discovering and promoting new areas of application of theoretical techniques in computer security and at supporting the systematic use of formal techniques in the development of security related applications.

### **Organisation of WG and Membership**

Currently the WG has 32 members, from 15 countries and 4 continents:

- Europe: 23 (France, UK: 5, Germany: 3, Italy: 2, Austria, Belgium, Denmark, Ireland, Luxemburg, Netherlands, Spain, Switzerland: 1)
- America: 7 (USA)
- Asia: 1 (China)
- Australia: 1

#### **Chairpersonship**

Prof. Riccardo Focardi, University Ca' Foscari, Venice, Italy, elected on 2 March 2016.

#### **New members**

No new memberships occurred in the last year.

### **Scientific activities and meetings**

#### **Remarkable results in the field of the WG**

The creation of Principles of Security and Trust (POST), the sixth main conference of ETAPS, and the continuous contribution to its organization as Program Chairs is one of the major outcomes of the WG. POST was established in 2012 after 11 years of the Workshop on Issues in the Theory of Security (WITS) that became in 2011 an associated conference at ETAPS, under the name of Theory of Security and Applications (TOSCA).

Almost always, these events originated volumes in the LNCS series and sometimes special issues of archive journals.

The HotSpot workshop is the informal counterpart of POST. Its informal flavour stimulates the exchange of new ideas in the field of foundations of security. It is the annual WG event where business meetings usually occur.

The members of the WG are actively involved in national and international projects on security; as members of the editorial boards of many highly reputed journals; as PC members of many international conferences, and as PC and chairs; as well as in the dissemination of the theory and methodology of security in Universities, international schools (e.g. FOSAD school below), seminars etc.

## **Events organised by the Working Group**

Since June 2016, the WG has organized the following events:

- 6th International Conference on Principles of Security and Trust (POST 2017), 22-29 April 2017, Uppsala, Sweden. Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2017. Matteo Maffei and Mark Ryan, co-chairs;
- 5th Workshop on Hot Issues in Security Principles and Trust (HotSpot 2017). Affiliated with ETAPS 2017, Uppsala, Sweden April 23rd. Ralf Küsters, chair;
- 1st Italian Conference on Cybersecurity (ITASEC 2017). 17-20 January 2017, Venice, Italy. Riccardo Focardi, co-chair;
- 16th International School on Foundations of Security Analysis and Design (FOSAD 2016) University Residential Center of Bertinoro, Italy 29 August - 3 September 2016;
- OAuth Security Workshop (OSW 2016), July 14th and 15th 2016, Trier, Germany. Ralf Küsters, co-chair;

## **Forthcoming events**

- 22nd European Symposium on Research in Computer Security (ESORICS 2017), Oslo, Norway on September 11-13, 2017. Dieter Gollman and Simon Foley, co-chairs;
- 17th International School on Foundations of Security Analysis and Design (FOSAD 2017) University Residential Center of Bertinoro, Italy 28 August - 2 September 2017;
- 7th International Conference on Principles of Security and Trust (POST 2018), 14-21 April 2018, Thessaloniki, Greece. Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2018. Ralf Küsters, co-chair;
- Sixth Workshop on Hot Issues in Security Principles and Trust (HotSpot 2018). Affiliated with ETAPS 2018, April 2018, Thessaloniki, Greece. Chair TBA;

## Publications

- Matteo Maffei and Mark Ryan (Eds.): Principles of Security and Trust - 6th International Conference, POST 2017, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2017, 22-29 April 2017, Uppsala, Sweden. Proceedings. Lecture Notes in Computer Science 10204, Springer 2017, ISBN 978-3-662-54454-9;
- Simon N. Foley Dieter Gollmann Einar Snekkenes (Eds.): 22nd European Symposium on Research in Computer Security, Oslo, Norway, September 11-15, 2017, Proceedings, Parts I and II. Lecture Notes in Computer Science 10492 and 10493, Springer 2017, ISBN 978-3-319-66401-9 and 978-3-319-66398-2;
- Alessandro Armando, Roberto Baldoni, Riccardo Focardi (Eds.): Proceedings of the First Italian Conference on Cybersecurity (ITASEC17), Venice, Italy, January 17-20, 2017. CEUR Workshop Proceedings 1816, <http://ceur-ws.org/Vol-1816/> CEUR-WS.org 2017.

## WG 1.08 — Concurrency Theory

**Chair:** Dr. Iliaria Castellani, INRIA Sophia Antipolis, France

**Secretary:** Prof. Mohammad Reza Mousavi, University of Leicester, UK

**Home page:** [www.concurrency-theory.org/organizations/ifip](http://www.concurrency-theory.org/organizations/ifip)

### 2016-17 BRIEF ACTIVITY REPORT

## Organisation of WG and Membership

A substantial increase in membership had taken place at the end of 2015, with the appointment of 10 new members. Hence, no new member was appointed in the subsequent period. On the other hand, a long-standing WG member, Roberto Amadio, decided to step down. The move of Prof. Mohammad Mousavi from Sweden to the UK has had an effect on the geographic distribution of the WG, increasing the UK representation to 9 members and turning Sweden into a non-represented country.

Currently, the WG has 54 members (11 women, 43 men). Since the WG creation in 2005, there has been a turnover of -11, + 13. The gender balance (20 % of women) seems to be slightly higher than that of the concurrency community at large, and we have been constantly trying to improve it, both when recruiting new members and when sending invitations to the events we organised.

## Scientific activities and meetings

In 2017, the WG was involved in the following event:

- TTCS 2017: <http://www.ttcs.ir> This is the 2nd edition of the International Conference on Topics in Theoretical Computer Science, to be held from September 12 to September 14, 2017, in Tehran, Iran. The post-proceedings will be published in the IFIP series of Lecture Notes in Computer Science by Springer.

## Events organised by the Working Group

- TRENDS 2016 (<https://concurrency-theory.org/events/workshops/trends>) TRENDS is the annual event of the WG. The 2016 edition was held on August 27, 2016, in Québec City, Canada, as a satellite workshop of CONCUR 2016.

The program consisted of the following invited talks:

- Franck van Breugel (York University, Canada): Towards a Quantitative Theory of Concurrent Probabilistic Systems
- Dana Fisman (University of Pennsylvania, USA): Inferring Regular Languages and omega-Languages
- Philippa Gardner (Imperial College, UK): A Concurrent Specification of POSIX

The workshop was followed by the WG 1.8 Business Meeting.



- OPCT'17: <http://opct2017.famaf.unc.edu.ar/Home.html> The WG organised the workshop “Open Problems in Concurrency Theory 2017”, which was held in the Institute of Science and Technology Austria (IST Austria), from June 26 to June 29, 2017. More specifically, this edition of the event was organised by the WG chair and secretary together with two WG members, Ana Sokolova and Pedro d’Argenio (with a special mention to Ana Sokolova, the local organiser).

The OPCT research seminar aims at identifying the most important open problems in concurrency theory. OPCT'17 is the 2nd edition of the workshop, three years after the 1st edition, OPCT'14 (which took place in Bertinoro, Italy, in June 2014, and was also co-sponsored by the WG, see <http://opct2014.cs.vu.nl> and <http://bulletin.eatcs.org/index.php/beatcs/article/download/289/271>).

OPCT'17 was again a very successful event, gathering 60 participants (with a very good gender balance for our research domain: 1/3 of women) and 42 talks covering the whole spectrum of concurrency theory.

A Special issue of the Journal of Logical and Algebraic Methods in Programming, associated with the workshop, has been organised and recently announced on the relevant mailing lists.

### Forthcoming events

- TRENDS 2017: <https://concurrency-theory.org/events/workshops/trends> This new edition of the WG annual event TRENDS will be held on September 9, 2017, in Berlin, as a satellite workshop of CONCUR 2017. For this edition we are experimenting a new formula, turning the half-day workshop into a full-day workshop, and soliciting a number of “highlight talks” to complement the invited talks.

The programme will consist of the following 2 invited talks:

- Marieke Huisman (University of Twente, The Netherlands): A Verification Technique for Deterministic Parallel Programs
- Jan Peleska (University of Bremen, Germany): Trends in Concurrency Theory - the Tester’s Perspective

and of the following 8 highlight talks:

- Javier Esparza: Static Analysis of Deterministic Negotiations
- Ana Sokolova: Convex Algebras for Probabilistic Systems
- Antonin Kucera: A Symbolic Approach to Optimizing Mean-Payoff in Continuous-Time Markov Chains with Alarms  
(based on joint work with Christel Baier, Clemens Dubslaff, Lubos Korenciak, and Vojtech Rehak)
- Paola Giannini: Delegation in multiparty sessions  
(based on ongoing work with Ilaria Castellani and Mariangiola Dezani-Ciancaglini)
- Ugo Montanari: Decomposition Structures for Soft Constraint Evaluation Problems
- Rob van Glabbeek: Ensuring Liveness Properties of Distributed Systems

- Mario Bravetti: Significant Decidable Variants of Asynchronous Session Subtyping (based on joint work with Marco Carbone and Gianluigi Zavattaro)
- Loic Helouët: Combining Free choice and Time in Petri Nets

TRENDS will be followed by the WG Business Meeting, as usual.

## Publications

Two special issues of the Journal of Logical and Algebraic Methods in Programming (JLAMP) have been organised by the IFIP WG 1.8 chair and secretary, to cover the topics treated in the past editions of TRENDS.

- JLAMP SI: TRENDS14-15: JLAMP Special issue on Trends in Concurrency Theory (selected invited contributions from the workshops TRENDS 2014 and 2015), Volume 87, February 2017: <https://doi.org/10.1016/j.jlamp.2017.01.002>
- JLAMP SI: TRENDS16: Special issue on Trends in Concurrency Theory (selected invited contributions from the workshops TRENDS 2015 and 2016): the papers are currently under review/revision.

## WG 1.09/2.15 — Verified Software

**Chair:** Dr. Jean-Christophe Filliâtre, CNRS, Orsay, France

**Vice-Chair:** Pr. Jim Woodcock, York University, UK

**Secretary:** Dr. Natarajan Shankar, SRI International, US

**Home page:** <https://www.lri.fr/~filliatr/1.9/>

### 2016-17 BRIEF ACTIVITY REPORT

The aims of 1.9/2.15 are to contribute to a comprehensive theory of programming that covers the features needed to build practical and reliable programs; to contribute to a coherent toolset that automates the theory and scales up to the analysis of industrial-strength software; and to collect realistic, verified programs as part of the Verified Software Initiative (VSI) Repository.

Since the creation of the group in 2011, we are having two meetings a year. These meetings are sometimes co-located with conferences of our domain (e.g. CAV, POPL) to limit travels, though this is not a rule.

We invite different observers to attend our meetings each time, and we collectively decide to elect some of them as new members whenever they participated actively and constructively to our meetings.

Our meetings encourage talks on work in progress and leave much room to discussion. Each talk is typically given one hour.

We also run the VSTTE conference and the Verified Software Competition ([vscomp](http://vscomp.org/) <http://vscomp.org/>, not to be confused with the VerifyThis competition, another competition of our domain).

## Organisation of WG and Membership

### New members

We welcomed three new members during the period:

- Marcelo Frias ([mfrias@dc.uba.ar](mailto:mfrias@dc.uba.ar))
- Gerhard Shellhorn ([schellhorn@informatik.uni-augsburg.de](mailto:schellhorn@informatik.uni-augsburg.de))
- Alexander Summers ([alexander.summers@inf.ethz.ch](mailto:alexander.summers@inf.ethz.ch))

Three of our members are now retired:

- Tony Hoare
- Jayadev Misra
- Wolfgang Paul

## **New organisation rules**

At our last meeting, we agreed on the idea of setting up an official list of observers (to be invited at our meetings) which will be discussed and updated at every meeting. So far this list is as follows:

- Jan Hoffmann, CMU
- Mike Dodds, Galois
- Ilya Sergej, UCL
- Yannick Moy, Adacore
- Radu Grigore, Kent
- Adam Chlipala, MIT
- Bernhard Beckert, KIT
- Thomas Wies, NYU

The idea is to invite these people three times in a row and then to vote to promote some of them as members.

## **Scientific activities and meetings**

### **Events organised by the Working Group**

- Meeting on 2-4 October 2016, Montauban, France (joint with WG2.3).  
Number of WG members present at the meeting: 10  
Number of WG observers present at the meeting: 8 (June Andronick, Andrew Butterfield, Marcello Frias, Philippa Gardner, Arie Gurfinkel, Gerhard Shellhorn, Alex Summers, Naijun Zhan)  
This is the second time we are having a joint meeting with 2.3 (Programming Methodology). 1.9/2.15 and 2.3 have six members in common.
- Meeting on 11-12 May 2017, Leuven, Belgium (hosted by Bart Jacobs).  
Number of WG members present at the meeting: 8  
Number of WG observers present at the meeting: 2 (Jan Tobias Mühlberg, Amin Timany)
- We contribute to the organization of VSTTE. VSTTE was co-located with CAV in 2016 (July 17-18 2016, Toronto, Canada) and in 2017 (July 22-23, 2017, Heidelberg, Germany).

### **Forthcoming events**

- We plan to co-locate our next meeting with NFM 2018 (Newport News, VA, USA, April 17-19, 2018).
- Andrew Ireland volunteers to host the meeting after that one in Edinburgh.

## **WG 1.10 — String Algorithms & Applications**

**Chair:** Prof. Costas Iliopoulos, Kings College, London, United Kingdom

**Secretary:** Prof. Bill Smyth, McMaster University, Canada

2016-17 BRIEF ACTIVITY REPORT

Report unfortunately missing as of September 8, 2017.