

Foreword

Dear participant,

It is a great pleasure to receive you at the University of Twente for the combined conferences on Graph Transformation (ICGT) and Software Model Checking (SPIN), further enhanced by a selection of exciting workshops on related topics.

All meetings of the conference will take place in various rooms of the Vrijhof, situated scenically in front of the pond with the “Drowned Village” art object, created by Wim T. Schippers in 1979 and one of the icons of our Technical University. Hopefully the weather will also allow you to take a stroll over the beautiful campus grounds of the university (which will celebrate its 50th anniversary a year from now). A leaflet describing various architectural highlights is included in your conference material.

Apart from the programmes of the various events, this booklet contains practical information on the use of the wireless network, the location of and transport to the conference banquets of ICGT and SPIN, and suggestions for dining on the other days of your stay. We definitely recommend (if you have the time) to spend at least one evening in the town of Enschede, with its very pleasant old market square and surrounding restaurants.

We will do our very best to make your stay at this conference a pleasant and fruitful one, both socially and scientifically. If you have any questions, suggestions or complaints, please make them known at the reception desk!

Arend Rensink
General Conference Chair

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Organization

ICGT 2010

- **Chairs:** Arend Rensink, University of Twente; and Andy Schürr, Technical University of Darmstadt, Germany

SPIN 2010

- **Chairs:** Jaco van de Pol and Michael Weber, University of Twente

PDMC+HiBi 2010

- **Chairs:** Michael Weber, University of Twente; Jiri Barnat, Masaryk University, Czech Republic; and Paolo Ballarini, University of Paris 12, France

GraBaTs 2010

- **Chairs:** Juan de Lara, Universidad Autónoma de Madrid, Spain; and Daniel Varró, Budapest University of Technology and Economics, Hungary

PNGT 2010

- **Chairs:** Claudia Ermel, TU Berlin, Germany; and Kathrin Hoffmann, HAW Hamburg, Germany

GCM 2010

- **Chairs:** Annegret Habel, University of Oldenburg, Germany; Mohamed Mosbah, University of Bordeaux 1, France; and Rachid Echahed, LIG Lab., Grenoble, France

WTNC 2010

- **Chairs:** Ion Petre, Bogdan Iancu, and Andrzej Mizera, Åbo Akademi University, Finland

ICGT Doctoral Symposium

- **Chairs:** Andrea Corradini, University of Pisa, Italy; and Maarten de Mol, University of Twente

Organizers

- **General conference chair:** Arend Rensink, University of Twente
- **Local chair:** Maarten de Mol and Joke Lammerink, University of Twente
- **Publicity chair:** Eduardo Zambon, University of Twente
- **Workshop chair:** Amir Hossein Ghamarian, University of Twente

About Enschede



Enschede lies directly on the Dutch eastern border, and it is a characteristic, modern and lively university town. Elegant historic buildings in the town and surrounding area are evocative of Enschede's rich textile past. Some of the town's most notable monuments are the beautiful town hall, several beautiful churches and a unique synagogue.

At the same time, large-scale urban renewal has given Enschede a new skyline with eye-catching, contemporary architecture.



Conference venue



The University of Twente (UT) is an entrepreneurial research university. It was founded in 1961 and offers education and research in areas ranging from public policy studies and applied physics to biomedical technology. The UT is the Netherlands' only campus university. In keeping with its enterprising spirit, the University is committed to making an economic and social contribution to the region of the Netherlands where it is based. The UT collaborates with Delft University of Technology and Eindhoven University of Technology under the umbrella of the 3TU.Federation, and is also a partner in the European Consortium of Innovative Universities (ECIU).

The workshop and conference sessions will take place at the Vrijhof (which is the cultural centre of the university). The plenary sessions will be held in the Amphitheater, Agora, Kleine Zaal, and Conference Room 5.



Transportation

Getting to Hengelo city center

To get to Hengelo city center from the University, take bus 9 or 15 and ask for 'Hengelo'. Back, ask for the 'University'. The buses depart from the University terrain (see map), and take about 15 minutes. Bus 9 goes every 15 minutes (every 30 minutes in the evening); the last bus from Hengelo station departs at 23:33. Bus 15 only runs during rush hours. You can buy a ticket on the bus.

Getting to Enschede city center

To get to Enschede city center from the University, take bus 1 and ask for 'Enschede'. Back, ask for the 'University'. This bus departs from the University terrain (see map), and takes about 15 minutes. Bus 1 goes every 15 minutes (every 30 minutes in the evening); the last bus from Enschede departs at 23:32. You can buy a ticket on the bus.

Other useful information

Registration Desk

The registration desk will be open before each keynote presentation and during the morning coffee breaks. If you want to register outside these hours, or need any assistance, please contact somebody from the local organization.

Badges

You are kindly requested to wear your name badge during the conference events. Admittance to the sessions, coffee breaks, lunches, and the evening programs is allowed only to registered participants.

Lunch

Lunch will be served every day between 12:30 and 13:30 in the room called Audiozaal, in the Vrijhof building (the building where the sessions take place).

Coffee Breaks

Every day there will be two coffee breaks, one in the morning and one in the afternoon. The coffee breaks will be served in the Lobby of the Vrijhof building (the building where the sessions take place).

Dinner

We have added a random sampling of useful places, cafes, restaurants, etc., to Google maps <http://tinyurl.com/icgtspin>.

While there are some on-campus facilities, the recommended way to head out for dinner is to take the bus (line 9) from the campus (stop "UT Viaduct" or "De Broeierd") to the center of Enschede (stop "Central Station", about 15 min.), then walk about five minutes to the Old Market ("Oude Markt"), which is lined with restaurants, bistros, bars, and cafes. We recommend checking the websites of restaurants for opening times (e.g., some are closed on Mondays).

Technical information for presentations

All rooms in Vrijhof are equipped with a digital projector. The digital projector has a VGA connector on the speaker's desk and should work at a resolution of 1024x768 and lower. Although there will be computers in every room, we recommend all speakers to use their own laptop to avoid potential incompatibility problems with the presentation software or the installed fonts in the computer.

Internet Access

Wireless access is available throughout the campus. You will need an IEEE 802.11b compatible wireless adapter. Network configuration uses DHCP, authentication is with captive portal (it opens in your web browser). Connect to the following network:

- **SSID:** GUEST

Along with your participant kit, you will receive an individual, temporary user name and password. **Be advised that the wireless traffic is not encrypted.**

Social programs

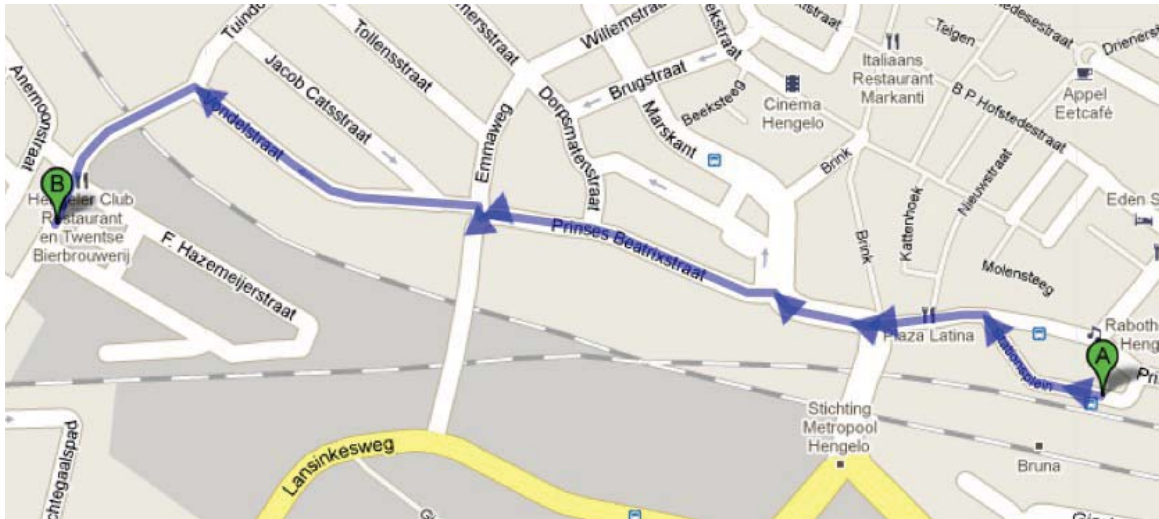
SPIN social event



The SPIN social event will take place in Hengelo, at the "Hengeler Club Restaurant", Tuindorpstraat 61. The programme starts at 18:00 in the lobby of the restaurant. We will first go on a guided tour of the "Twentse Bierbrouwerij", and afterwards we will dine at the restaurant.

Transportation to Hengelo has not been pre-arranged. It is recommended to take bus 15 (see transportation) to Hengelo railway station. From there, the "Hengeler Club Restaurant" can be reached by a 10 minute walk (see map below). The last bus back (bus 9) departs at 23:33 from Hengelo station.

See also www.creatiefabriek.nl (in Dutch).



ICGT social event

The ICGT social event will take place at the small village of Tubbergen, approximately 25 km away from Enschede. Transportation to Tubbergen has been arranged, and ICGT buses depart from the Vrijhof at 17:15. On the way back, the buses will stop at the "Broeierd" and the Vrijhof. If you'd like to be taken to one of the other hotels, please contact the local organization.



In Tubbergen, we will first visit the 'Glasrijk' exposition, an annual event with several exhibitions (both indoors and outdoors) in the field of stained glass, sculptures, antique glass, glass objects, glass and interior design.

Afterwards, we will dine at the "Oale Roadhoes" restaurant in the renovated 1930's town hall.



See also www.glasrijk.nl and www.oaleroadhoes.nl (both in Dutch).

Keynote speakers

Monday 27 September (14:00h, Amphitheater)



Alessandro Cimatti
Embedded Systems Research Unit
Bruno Kessler Foundation, Italy
SPIN keynote speaker

SMT-Based Software Model Checking

Abstract

The field of Satisfiability Modulo Theories (SMT) has recently witnessed tremendous progress. SMT solvers provide efficient reasoning functionalities over expressive languages, and can be used effectively as backends in the verification of software. In this talk, I will briefly present the basics of SMT, and then will overview the use of advanced SMT functionalities (e.g. incrementality, abstraction, interpolation) in software verification, both for sequential and concurrent software.

Bio

Alessandro Cimatti is the head of the Embedded Systems Unit of the IRST Center for Information Technology. His research interests include decision procedures, model checking, formal requirements analysis, safety analysis, and planning. Cimatti has been leading and participating in several technology transfer projects in the application of formal verification to safety critical systems.

Tuesday 28 September (9:00h, Amphitheater)



Darren Cofer
Advanced Technology Center
Rockwell Collins, USA
SPIN keynote speaker

Model Checking: Cleared for Take Off

Abstract

The increasing popularity of model-based development tools and the growing power of model checkers are making it practical to use formal methods for verification of avionics software. This talk describes a translator framework that enables model checking tools to be easily integrated into a model-based development environment to increase assurance, reduce cost, and satisfy certification objectives. In particular, we describe how formal methods can be used to satisfy certification objectives of DO-178C/ED-12C, the soon-to-be-published guidance document for software aspects of certification for commercial aircraft.

Bio

Dr. Darren Cofer is a Principal Systems Engineer with Rockwell Collins' Advanced Technology Center. He earned his PhD in Electrical and Computer Engineering from The University of Texas at Austin. His principal area of expertise is developing and applying advanced analysis methods and tools for verification and certification of high-integrity avionics systems. His background includes work with formal methods for system and software analysis, the design of real-time embedded systems for safety-critical applications, and the development of nuclear propulsion systems in the U.S. Navy. He has served as principal investigator on several government-sponsored research programs (NASA, NSA, AFRL, DARPA). He currently serves on the RTCA committee developing new certification guidance for airborne software (DO-178C). He is an Associate Technical Editor for Control Systems Magazine and is a Senior Member of the IEEE. He has been granted six patents and is the author of seven journal articles and book chapters and over 25 conference papers.

Wednesday 29 September (9:30h, Agora)



Javier Esparza
Faculty of Computer Science
Technical University of Munich, Germany
Joint ICGT/SPIN keynote speaker

A False History of True Concurrency: from Petri to Tools

Abstract

In some papers and talks, Moshe Vardi has described the history of the automata-theoretic approach to model checking, the verification technique that inspired the SPIN model checker and other tools. He traces it back to the work of theoreticians like Büchi, Prior, Trakhtenbrot and others, whose motivations were surprisingly far away from the applications that their ideas found down the line. Inspired by this work, in this note I briefly present the origins of the unfolding approach to model checking, a branch of the automata-theoretic approach that alleviates the state-explosion problem caused by concurrency.

Bio

Javier Esparza is Professor for Foundations of Software Reliability and Theoretical Computer Science at the Technical University of Munich. Previously he held positions in Edinburgh, Munich, and Stuttgart. He has co-authored two books on analysis techniques of concurrency models, and has published about 100 scientific papers in the fields of automatic program verification, program analysis, and concurrency theory. He has contributed to the theory of Petri nets, to the foundations of program analysis, and to the development of model-checking techniques for infinite-state and stochastic systems. In 2009 he received an honorary doctorate from the Masaryk University of Brno.

Thursday 30 September (9:00h, Agora)



Krzysztof Czarnecki
Department of Electrical and Computer Engineering
University of Waterloo, Canada
ICGT keynote speaker

Model Mappings and Synchronization: From Theory to Practice

Abstract

Model-driven engineering often requires many overlapping models of a system, each supporting a particular kind of stakeholder or task. Mappings are specifications of the overlaps, and tools can use them to provide consistency checking and synchronization. I will use examples from industrial practice to illustrate the challenges of designing mappings and synchronization tools. Then I will present our ongoing effort to create both a theoretical framework addressing these challenges and tools based on the framework. I will close with a view on the challenges ahead.

Bio

Krzysztof Czarnecki is Associate Professor in the Department of Electrical and Computer Engineering at the University of Waterloo and NSERC/Bank of Nova Scotia Industrial Research Chair in Requirements Engineering of Service-oriented Software Systems. He received the MS degree in Computer Science from California State University, Sacramento, and his PhD in Computer Science from Technical University of Ilmenau, Germany. Before coming to University of Waterloo in 2003, he worked for eight years at DaimlerChrysler Research, Germany, focusing on improving software development practices and technologies in enterprise and embedded domains. He is a co-author of the book "Generative Programming" (Addison-Wesley, 2000). He received the Premier's Research Excellence Award in 2004 and the British Computing Society in Upper Canada Award for Outstanding Contributions to IT Industry in 2008. He is the Principal Investigator of a \$9.3 million project on "Model-Based Software Service Engineering", funded by the Province of Ontario (2008-2013). His work focuses on developing model-based approaches to software engineering that work in industrial practice.

Friday 1 October (9:00h, Agora)



Christoph Brandt
SECAN-Lab
University of Luxembourg, Luxembourg
ICGT keynote speaker

How far can Enterprise Modeling for Banking be supported by Graph Transformation?

Abstract

This keynote paper presents results coming out of an ongoing research project between Credit Suisse Luxembourg and the University of Luxembourg. It presents an approach that shows good potential to address security, risk and compliance issues the bank has in its daily business by the use of integrated organizational models built up by enterprise modeling activities. Such organizational models are intended to serve to describe, evaluate, automate, monitor and control as well as to develop an organization respecting given organizational security, risk and compliance side-constraints. Based on the empirical scenario at Credit Suisse, real-world requirements towards a modeling framework as well as the modeling process are developed. Graph Transformation techniques are proposed as formal framework for this purpose and they are evaluated in the sense of how far they can support the identified enterprise modeling activities in the context of the new enterprise modeling framework.

Bio

Christoph Brandt is currently working on research questions about security, risk and compliance in large decentralized banking organizations. To be able to discuss these issues, a holistic model of an organization is needed, which is derived from small and decentralized models, organized by an appropriate modeling framework and supported by a sound modeling technique. This work is done in cooperation with Credit Suisse, University of Luxembourg, TU Berlin, TU Darmstadt, TU Eindhoven, CWI, UCLA and others. Before that, he worked on different research projects at the TU Darmstadt and at the Karlsruhe Institute of Technology (KIT). During his time in industry, he was working for Infosys Technologies, Cap Gemini, ISE and Cegelec.

Overall schedule and room assignment

Monday 27 Sep	Tuesday 28 Sep	Wednesday 29 Sep	Thursday 30 Sep	Friday 1 Oct	Saturday 2 Oct
SPIN (Amphitheater)			PDMC/HiBi (Amphitheater)		WTNC (Room 5)
	PNGT (Room 5)	ICGT (Agora)			GCM (Kleine Zaal)
	GraBaTs (Kleine Zaal)	ICGT Doctoral Symp. (Amphi - Agora - Kleinez.)			
SPIN Reception	SPIN Dinner		ICGT Dinner		

Detailed program

Monday, 27 September

Time	SPIN (Amphitheater)
12:00 - 12:30	Registration
12:30 - 14:00	Lunch
14:00 - 15:00	Keynote 1: Alessandro Cimatti
15:00 - 15:30	Session 1: SMT Solving
15:30 - 16:00	Break
16:00 - 17:30	Session 2: Model Checking in Context
17:30 -	Reception

Tuesday, 28 September

Time	SPIN (Amphitheater)	GraBaTs (Kleine Zaal)	PNGT (Room 5)
09:00- 10:00	Keynote 2: Darren Cofer		Session 1: Reconfigurable Petri Nets
10:00 - 10:30	Break		
10:30 - 12:00	Session 3: Model Checking - Implementation and Performance	Session 1: Graph transformation tools and applications	Session 2: Relating Transformation Systems
12:00 - 12:30	Business meeting	Session 2: Verification and analysis I	
12:30 - 14:00	Lunch		
14:00 - 15:30	Session 4: LTL and Büchi Automata	Session 3: Diagram editors, animation and visualization.	Session 3: Modelling with Net Patterns and AHL Nets
15:30 - 16:00	Break		
16:00 - 17:30		Session 4: Verification and analysis II	Session 4: Analysis of Model Transformation by Petri Net Abstraction
17:30 - 18:00			
18:00 -	Social event - Conference dinner		

Wednesday, 29 September

Time	SPIN (Amphitheater)	ICGT (Agora)
09:30 - 10:30	Joint ICGT-SPIN Keynote: Javier Esparza	
10:30 - 11:00	Break	
11:00 - 12:30	Session 5: Infinite State Models	Session 1: Graphs and Logic
12:30 - 13:30	Lunch	
13:30 - 15:00	Session 6: Sponsors / Concurrent Software	Session 2A: Behavioural Analysis
15:00 - 15:30	Break	
15:30 - 16:30		Session 2B: Behavioural Analysis
16:30 - 17:00	Break	
17:00 - 18:00		ICGT Doctoral Symposium (Amphitheater - Agora)
		Session 1: two parallel sessions

Thursday, 30 September

Time	ICGT (Agora)	PDMC+HiBi (Amphitheater)
09:00 - 09:30	Keynote 2: Krzysztof Czarnecki	
09:30 - 10:00		Keynote 1: Youssef Hamadi
10:00 - 10:30	Session 3A: Models and Model Transformation	Keynote 1: Youssef Hamadi
10:30 - 11:00	Break	
11:00 - 12:30	Session 3B: Models and Model Transformation	Session 1: Shared-memory parallel model checking
12:30 - 13:30	Lunch	
13:30 - 15:00	Session 4: Algebraic Foundations	Session 2: Parallel computing in systems biology I
15:00 - 15:30	Break	
15:30 - 16:30	ICGT Doctoral Symposium (Agora - Kleine Zaal)	Session 3: Distributed verification methods
	Session 2: two parallel sessions	
16:30 - 17:00		
17:15 -	ICGT Social event / dinner	

Friday, 1 October

Time	ICGT (Agora)	PDMC+HiBi (Amphitheater)
09:00 - 09:30	Keynote 3: Christoph Brandt	
09:30 - 10:00		Keynote 2: Peter Schuster
10:00 - 10:30	Session 5A: Applications	
10:30 - 11:00	Break	
11:00 - 12:30	Session 5B: Applications	Session 4: Parameter-dependent analysis
12:30 - 13:30	Lunch	
13:30 - 15:00	Session 6: Rule Composition	Session 5: Parallel computing in systems biology II
15:00 - 15:30	Break	
15:30 - 17:00	Celebration 10 years of ICGT	

Saturday, 2 October

Time	WTNC (Room 5)	GCM (Kleine Zaal)
09:00 - 10:30	Session 1	Session 1
10:30 - 11:00	Break	
11:00 - 12:30	Session 2	Session 2
12:30 - 14:00	Lunch	
14:00 - 15:30	Session 3	Session 3
15:30 - 16:00	Break	
16:00 - 17:00	Session 4	Session 4
17:00 - 17:30		Plenary discussion round
18:30 -		Dinner

SPIN Program

Monday, 27 September

SPIN Keynote 1 [Room: Amphitheater]

[14:00 - 15:00] SMT-Based Software Model Checking. *Alessandro Cimatti*

SPIN Session 1: SMT Solving [Room: Amphitheater]

[15:00 - 15:30] Symbolic Object Code Analysis. *Jan Tobias Mühlberg, Gerald Lüttgen*

SPIN Session 2: Model Checking in Context [Room: Amphitheater]

[16:00 - 16:30] Experimental Comparison of Concolic and Random Testing for Java Card Applets. *Kari Kähkönen, Roland Kindermann, Keijo Heljanko and Ilkka Niemelä*

[16:30 - 17:00] Combining SPIN with ns-2 for protocol optimization. *Pedro Merino and Alberto Salmerón*

[17:00 - 17:30] Automatic Generation of Model Checking Scripts based on Environment Modeling. *Kenro Yatake and Toshiaki Aoki*

Tuesday, 28 September

SPIN Keynote 2 [Room: Amphitheater]

[09:00 - 10:00] Model Checking - Cleared for Take Off. *Darren Cofer*

SPIN Session 3: Model Checking: Implementation and Performance [Room: Amphitheater]

[10:30 - 11:00] Context-Enhanced Directed Model Checking. *Martin Wehrle and Sebastian Kupferschmid*

[11:00 - 11:30] Efficient Explicit-State Model Checking on General Purpose Graphics Processors. *Damian Sulewski and Stefan Edelkamp*

[11:30 - 12:00] The SpinJa Model Checker (Tool Presentation). *Marc de Jonge and Theo Ruys*

[12:00 - 12:30] Business meeting

SPIN Session 4: LTL and Büchi Automata [Room: Amphitheater]

[14:00 - 14:30] On the Virtue of Patience: Minimizing Büchi Automata. *Rüdiger Ehlers and Bernd Finkbeiner*

[14:30 - 15:00] Enacting Declarative Languages using LTL: Avoiding Errors and Improving Performance. *Maja Pesic, Dragan Bosnacki and Wil van der Aalst*

[15:00 - 15:30] Nevertrace Claims for Model Checking. *Zhe Chen and Gilles Motet*

Wednesday, 29 September

Joint ICGT/SPIN Keynote [Chair: Arend Rensink] [Room: Agora]

[09:30 - 10:30] A False History of True Concurrency: from Petri to Tools. *Javier Esparza*

SPIN Session 5: Infinite State Models [Room: Amphitheater]

[11:00 - 11:30] Analysing Mu-Calculus Properties of Pushdown Systems (Tool Presentation). *Matthew Hague and Luke Ong*

[11:30 - 12:00] Time-Bounded Reachability in Distributed Input/Output Interactive Probabilistic Chains. *Georgel Calin, Pepijn Crouzen, Pedro R. D'Argenio, Moritz Hahn and Lijun Zhang*

[12:00 - 12:30] An Automata-Based Symbolic Approach for Verifying Programs on Relaxed Memory Models. *Alexander Linden and Pierre Wolper*

SPIN Session 6: Sponsors / Concurrent Software [Room: Amphitheater]

[13:30 - 13:45] Model checking safety critical systems (in practice). *Martin Keesen (Logica), Aernoudt Bottemanne (Verum Software Technologies BV)*.

[13:45 - 14:00] Graph Based Car Configuration: Cost Reduction in Automotive through first-time-right business processes. *Gaetse Meester (Better Be)*

[14:00 - 14:30] Context-Bounded Translations for Concurrent Software: An Empirical Evaluation. *Naghmeh Ghafari, Zvonimir Rakamaric and Alan Hu*

[14:30 - 15:00] One Stack to Run Them All. *Nicholas Kidd, Suresh Jagannathan and Jan Vitek*

ICGT Program

Wednesday, 29 September

Joint ICGT/SPIN Keynote [Chair: Arend Rensink] [Room: Agora]

[09:30 - 10:30] A False History of True Concurrency: from Petri to Tools. *Javier Esparza*

ICGT Session 1: Graphs and Logic [Chair: Annegret Habel] [Room: Agora]

[11:00 - 11:30] Graph Transformation Units Guided by a SAT Solver. *Hans-Jörg Kreowski, Sabine Kuske and Robert Wille*

[11:30 - 12:00] Delaying Constraint Solving in Symbolic Graph Transformation. *Fernando Orejas and Leen Lambers*

[12:00 - 12:30] A Dynamic Logic for Termgraph Rewriting. *Philippe Balbiani, Rachid Echahed and Andreas Herzig*

ICGT Session 2A: Behavioural Analysis [Chair: Ugo Montanari] [Room: Agora]

- [13:30 - 14:00] A New Type of Behaviour-Preserving Transition Insertions in Unfolding Prefixes. *Victor Khomenko*
- [14:00 - 14:30] On the Computation of McMillan's Complete Prefix for Contextual Nets and Graph Grammars. *Paolo Baldan, Alessandro Bruni, Andrea Corradini, Barbara König and Stefan Schwoon*
- [14:30 - 15:00] Verification of Graph-Transformation Systems with Context-Free Specifications. *Barbara König and Javier Esparza*

ICGT Session 2B: Behavioural Analysis [Chair: Reiko Heckel] [Room: Agora]

- [15:30 - 16:00] Saturated LTSs for Adhesive Rewriting Systems. *Filippo Bonchi, Fabio Gadducci, Giacomina Monreale and Ugo Montanari*
- [16:00 - 16:30] A Hoare Calculus for Graph Programs. *Christopher M. Poskitt and Detlef Plump*

ICGT Doctoral Symposium Session 1A [Chair: Andrea Corradini] [Room: Amphitheater]

- [17:00 - 17:20] Recognizable graph languages for the verification of dynamic systems. *Christoph Blume*
- [17:20 - 17:40] Correctness of Graph Programs relative to HR+ Graph Conditions. *Hendrik Radke*
- [17:40 - 18:00] Bisimulation Theory for Graph Transformation Systems. *Mathias Hülsbusch*

ICGT Doctoral Symposium Session 1B [Chair: Dirk Janssens] [Room: Agora]

- [17:00 - 17:20] EMF Model Transformation based on Graph Transformation: Formal Foundation and Tool Environment. *Enrico Bierman*
- [17:20 - 17:40] Formal Modeling and Analysis of Communication Platforms like Skype based on Petri Net Transformation Systems. *Tony Modica*
- [17:40 - 18:00] Stochastic Modelling and Simulation of Dynamic Resource Allocation. *Adwoa Donyina*

Thursday, 30 September

ICGT Keynote 2 [Chair: Andy Schürr] [Room: Agora]

- [09:00 - 10:00] Model Mappings and Synchronization: From Theory to Practice. *Krzysztof Czarnecki*

ICGT Session 3A: Models and Model Transformation [Chair: Gabriele Taentzer] [Room: Agora]

- [10:00 - 10:30] Formal Analysis of Functional Behaviour for Model Transformations based on Triple Graph Grammars. *Frank Hermann, Hartmut Ehrig, Fernando Orejas and Ulrike Golas*

ICGT Session 3B: Models and Model Transformation [Chair: Dániel Varró] [Room: Agora]

[11:00 - 11:30] Conflict Detection for Model Versioning based on Graph Modifications. *Gabriele Taentzer, Claudia Ermel, Philip Langer and Manuel Wimmer*

[11:30 - 12:00] A Component Concept for Typed Graphs with Inheritance and Containment Structures. *Stefan Jurack and Gabriele Taentzer*

[12:00 - 12:30] Combining Termination Criteria by Isolating Deletion. *Dénes Bisztray and Reiko Heckel*

ICGT Session 4: Algebraic Foundations [Chair: Barbara König] [Room: Agora]

[13:30 - 14:00] Graph Rewriting in Span-Categories. *Michael Löwe*

[14:00 - 14:30] Finitary M-Adhesive Categories. *Benjamin Braatz, Hartmut Ehrig, Karsten Gabriel and Ulrike Golas*

[14:30 - 15:00] Hereditary Pushouts Reconsidered. *Tobias Heindel*

ICGT Doctoral Symposium Session 2A [Chair: Fernando Orejas] [Room: Agora]

[15:30 - 15:50] LTS Semantics for Process Calculi from their Graphical Encodings. *Giacoma Monreale*

[15:50 - 16:10] Automated Assistance for Search-Based Refactoring using Unfolding of Graph Transformation Systems. *Fawad Qayum*

[16:10 - 16:30] Realizing Impure Functions in Interaction Nets. *Eugen Jiresch*

ICGT Doctoral Symposium Session 2B [Chair: Detlef Plump] [Room: Kleine Zaal]

[15:30 - 15:50] Static Type Checking of Model Transformation Programs. *Zoltán Ujhelyi*

[15:50 - 16:10] Composite Modeling based on Typed Graphs with Inheritance and Containment Structures. *Stefan Jurack*

[16:10 - 16:30] Using Graph Transformations and Graph Abstractions for Software Verification. *Eduardo Zambon*

Friday, 1 October

ICGT Keynote 3 [Chair: Hartmut Ehrig] [Room: Agora]

[09:00 - 10:00] How Far Can Enterprise Modeling for Banking be Supported by Graph Transformation? *Christoph Brandt*

ICGT Session 5A: Applications [Chair: Claudia Ermel] [Room: Agora]

[10:00 - 10:30] Graph Transformation for Domain-Specific Discrete Event Time Simulation. *Juan de Lara, Esther Guerra, Artur Boronat, Reiko Heckel and Paolo Torrini*

ICGT Session 5B: Applications [Chair: Artur Boronat] [Room: Agora]

[11:00 - 11:30] Counterpart Semantics for a Second-order Mu-calculus. *Fabio Gadducci, Alberto Lluch Lafuente and Andrea Vandin*

[11:30 - 12:00] Declarative Mesh Subdivision Using Topological Rewriting in MGS. *Antoine Spicher, Olivier Michel and Jean-Louis Giavitto*

[12:00 - 12:30] A Model for Distribution and Revocation of Certificates. *Åsa Hagström and Francesco Parisi-Presicce*

ICGT Session 6: Rule Composition [Chair: Hans-Jörg Kreowski] [Room: Agora]

[13:30 - 14:00] Local Confluence for Rules with Nested Application Conditions. *Hartmut Ehrig, Annegret Habel, Leen Lambers, Fernando Orejas and Ulrike Golas*

[14:00 - 14:30] Multi-Amalgamation in Adhesive Categories. *Ulrike Golas, Hartmut Ehrig and Annegret Habel*

[14:30 - 15:00] Amalgamating Pushout and Pullback Graph Transformation in Collagories. *Wolfram Kahl*

PDMC+HiBi Program

Thursday, 30 September

PDMC+HiBi Keynote 1 [Room: Amphitheater]

[09:15 - 09:30] Opening

[09:30 - 10:30] Parallel SAT Solving. *Youssef Hamadi*

Session 1: Shared-memory parallel model checking [Room: Amphitheater]

[11:00 - 11:30] DiVinE: Parallel Distributed Model Checker (Tool paper). *Jiří Barnat, Luboš Brim, Milan Češka and Petr Ročkal*

[11:30 - 12:00] A General Lock-Free Algorithm for Parallel State Space Construction. *Rodrigo Tacla Saad, Silvano Dal Zilio and Bernard Berthomieu*

[12:00 - 12:30] GPU-PRISM: An Extension of PRISM for General Purpose Graphics Processing Units (Tool paper). *Dragan Bosnacki, Stefan Edelkamp, Damian Sulewski and Anton Wijs*

Session 2: Parallel computing in systems biology I [Room: Amphitheater]

[13:30 - 14:00] Enhancing the Scalability of Simulations by Embracing Multiple Levels of Parallelization. *Jan Himmelspach, Roland Ewald, Stefan Leye and Adelinde Uhrmacher*

[14:00 - 14:30] Fast Parallel Markov Clustering in Bioinformatics using Massively Parallel Graphics Processing Unit Computing. *Alhadi Bustamam, Kevin Burrage and Nicholas Hamilton*

[14:30 - 15:00] HMMLib: A C++ Library for General Hidden Markov Models Exploiting Modern CPUs. *Andreas Sand, Asbjørn Tølbøl Brask, Christian N. S. Pedersen and Thomas Mailund*

Session 3: Distributed verification methods [Room: Amphitheater]

[15:30 - 16:00] Industrial Strength Distributed Explicit State Model Checking. *Brad Bingham, Jesse Bingham, John Erickson, Flavio M. de Paula, Mark Reitblatt and Gaurav Singh*

[16:00 - 16:30] A BSP Algorithm for the State Space Construction of Security Protocols. *Michael Guedj, Frederic Gava, and Franck Pommereau*

[16:30 - 17:00] Three High Performance Architectures in the Parallel Approximate Probabilistic Model Checking Boat. *Khaled Hamidouche, Alexandre Borghi, Pierre Esterie, Joel Falcou and Sylvain Peyronnet*

Friday, 1 October

PDMC+HiBi Keynote 2 [Room: Amphitheater]

[09:30 - 10:30] Problem Solving by Inverse Methods in Systems Biology. *Peter Schuster*

Session 4: Parameter-dependent analysis [Room: Amphitheater]

[11:00 - 11:30] Parallel computing algorithms for reverse-engineering and analysis of genome-wide gene regulatory networks from gene expression profiles. *Vincenzo Belcastro, Francesco Gregoretti, Gennaro Oliva and Diego di Bernardo*

[11:30 - 12:00] Parameter Scanning by Parallel Model Checking with Applications to Systems and Synthetic Biology. *Jiří Barnat, Luboš Brim, David Safranek and Martin Vejnar*

[12:00 - 12:30] Predicting the effects of parameters changes in stochastic models through parallel synthetic experiments and multivariate analysis. *Michele Forlin, Tommaso Mazza and Davide Prandi*

Session 5: Parallel computing in systems biology II [Room: Amphitheater]

[13:30 - 14:00] Parallel particle-based reaction diffusion: a GPU implementation. *Lorenzo Dematte*

[14:00 - 14:30] Using the GPU and Multi-Core CPU to Generate a 3D Oviduct Through Feature Extraction from Histology Slides. *Mark Burkitt, Dawn Walker, Daniela Romano and Alireza Fazeli*

[14:30 - 15:00] Implementation of Smith-Waterman algorithm in OpenCL for GPUs. *Dzmitry Razmyslovich, Guillermo Marcus, Markus Gipp, Marc Zapatka and Andreas Szillus*

PNGT Workshop Program

Tuesday, 28 September

PNGT Session 1: Reconfigurable Petri Nets [Room: Room 5]

[09:00 - 09:15] Welcome and Opening

[09:15 - 10:00] Transformation of Petri Nets with Individual Tokens. *Tony Modica, Karsten Gabriel and Kathrin Hoffmann*

PNGT Session 2: Relating Transformation Systems [Room: Room 5]

[10:30 - 11:15] Formal Relationship between Petri Net and Graph Transformation Systems based on Functors between M-Adhesive Categories. *Maria Maximova, Hartmut Ehrig, Claudia Ermel*

[11:15 - 12:00] Towards a Visual Tool Environment for Reconfigurable Algebraic High-Level Nets based on the Eclipse Modeling Framework and AGG. *Winzent Fischer, Tony Modica, Enrico Biermann, Claudia Ermel*

PNGT Session 3: Modelling with Net Patterns and AHL Nets [Room: Room 5]

[14:00 - 14:45] Using Net Patterns to Simplify the Application of Graph Transformation Rules. *Frank Trollmann and Sahin Albayrak*

[14:45 - 15:30] Functorial Analysis of Algebraic Higher-Order Net Systems with Applications to Mobile Ad-Hoc Networks. *Ulrike Golas, Kathrin Hoffmann, Hartmut Ehrig, Alexander Rein, and Julia Padberg*

PNGT Session 4: Analysis of Model Transformation by Petri Net Abstractions
[Room: Room 5]

[16:00 - 16:45] Guided State Space Exploration using Back-annotation of Occurrence Vectors. *Ábel Hegedüs and Daniel Varró*

[16:45 - 17:15] Discussion and Closing

GraBaTs Workshop Program

Tuesday, 28 September

Joint SPIN Keynote 2 [Room: Amphitheater]

[09:00 - 10:00] Model Checking - Cleared for Take Off. *Darren Cofer*

GraBaTs Session 1: Graph transformation tools and applications. [Room: Kleine Zaal]

[10:30 - 11:00] Attribute Computations in the DPoPb Graph Transformation Engine (long pres.). *Hanh Nhi Tran, Christian Percebois, Ali Abou Dib, Louis Feraud and Sergei Soloviev*

- [11:00 - 11:20] Enabling Graph Transformations on Program Code (short pres.). *Michael Striewe, Moritz Balz and Michael Goedicke*
- [11:20 - 11:50] Visual Modeling of Controlled EMF Model Transformations using Henshin (long pres.). *Enrico Biermann, Claudia Ermel, Johann Schmidt and Angeline Warning*

GraBaTs Session 2: Verification and analysis [Room: Kleine Zaal]

- [11:50 - 12:10] Reachability Analysis on Timed Graph Transformation Systems (short pres.). *Christian Heinzemann, Julian Suck and Tobias Eckardt*
- [12:10 - 12:30] Neighbourhood Abstraction in GROOVE (short pres.). *Arend Rensink and Eduardo Zambon*

GraBaTs Session 3: Diagram editors, animation and visualization. [Room: Kleine Zaal]

- [14:00 - 14:30] Sketch-based Diagram Editors with User Assistance based on Graph Transformation and Graph Drawing Techniques (long pres.). *Steffen Mazanek, Christian Rutetzki and Mark Minas*
- [14:30 - 14:50] From the Behavior Model of an Animated Visual Language to its Editing Environment Based on Graph Transformation (short pres.). *Torsten Strobl, Mark Minas, Andreas Pleuß and Arnd Vitzthum*
- [14:50 - 15:10] Design of a SOM Business Process Modelling Tool based on the ADOxx Meta-modelling Platform (short pres.). *Domenik Bork and Elmar J. Sinz*
- [15:10 - 15:30] Visualization of Traceability Models with Domain-specific Layouting (short pres.). *Ábel Hegedüs, Zoltán Ujhelyi, Ákos Horváth and István Ráth*

GraBaTs Session 4: Verification and analysis II. [Room: Kleine Zaal]

- [16:00 - 16:50] Invited Talk: Methods and Tools for the Verification of Finite-State and Infinite-State Graph Transformation Systems. *Barbara König*
- [16:50 - 17:20] Distributed Graph-Based State Space Generation (long pres.). *Stefan Blom, Gijs Kant and Arend Rensink*
- [17:20 - 17:40] Applying Offline Verification of Model Transformations to Mobile Social Networks (short pres.). *Mark Asztalos, Péter Ekler, Laszlo Lengyel and Tihamer Levendovszky*
- [17:40 - 18:00] Incremental Pattern Matching in Graph-Based State Space Exploration (short pres.). *Amir Ghamarian, Arash Jalali and Arend Rensink*

WTNC Workshop Program

Saturday, 2 October

WTNC Session 1 [Room: Room 5]

[09:00 - 10:30] Tutorial on Quantum Computing. *Mika Hirvensalo*

WTNC Session 2 [Room: Room 5]

[11:00 - 11:50] Fractionally Predictive Spiking Neural Networks. *Sander Bohte*

[11:50 - 12:40] Computational models for the self-assembly of intermediate filaments. *Eugen Czeizler*

WTNC Session 3 [Room: Room 5]

[14:00 - 14:50] Abstraction of Stochastic Graph Transformations. *Reiko Heckel*

[14:50 - 15:35] Control strategies for the modulation of the heat shock response. *Elena Czeizler*

WTNC Session 4 [Room: Room 5]

[16:00 - 16:50] Modeling Gene Assembly in Ciliates: Overlap and Containment in Graphs. *Robert Brijder*

[16:50 - 17:30] A new model for digraph-based simple operations for gene assembly. *Sepinoud Azimi*

GCM Workshop Program

Saturday, 2 October

GCM Session 1 [Room: Kleine Zaal]

[08:50 - 09:00] Welcome address

[09:00 - 09:30] Construction of Pushout Complements in the Category of Hypergraphs. *Marvin Heumüller, Salil Joshi, Barbara König and Jan Stückrath*

[09:30 - 10:00] Production Networks as Communities of Autonomous Units and Their Stability. *Sergey Dashkovskiy, Hans-Jörg Kreowski, Sabine Kuske, Andrii Mironchenko, Lars Naujok and Caroline von Totth*

[10:00 - 10:30] On the Decidability of Bigraphical Sortings. *Giorgio Bacci and Davide Grohmann*

GCM Session 2 [Room: Kleine Zaal]

[11:00 - 11:30] Generating Instance Graphs from Class Diagrams with Adaptive Star Grammars. *Berthold Hoffmann and Mark Minas*

[11:30 - 12:00] Formalizing Models with Abstract Attribute Constraints. *Mark Asztalos, Péter Ekler, Laszlo Lengyel, Tihamer Levendovszky and Tamás Mészáros*

[12:00 - 12:30] Incremental update of constraint-compliant policy rules. *Paolo Bottoni, Andrew Fish and Francesco Parisi-Presicce*

GCM Session 3 [Room: Kleine Zaal]

[14:00 - 14:30] Minimizing Finite Automata with Graph Programs. *Detlef Plump, Robin Suri and Ambuj Singh*

[14:30 - 15:00] A Visual Interpreter Semantics for Statecharts Based on Amalgamated Graph Transformation. *Ulrike Golas, Enrico Biermann, Hartmut Ehrig and Claudia Ermel*

[15:00 - 15:30] The Pull-Tab Transformation. *Abdulla Alqaddoumi, Sergio Antoy, Sebastian Fischer and Fabian Reck*

GCM Session 4 [Room: Kleine Zaal]

[16:00 - 16:20] Coinductive graph representation: the problem of embedded lists. *Celia Picard and Ralph Matthes*

[16:20 - 16:40] Formal Specification of Model Transformations by Triple Graph Grammars with Application Conditions. *Ulrike Golas, Hartmut Ehrig and Frank Hermann*

[16:40 - 17:00] Weakest Liberal Preconditions relative to HR* Graph Conditions. *Hendrik Radke*

[17:00 - 17:30] Plenary discussion round