

# LPNMR '09

[HTTP://WWW.CS.UNI-POTSDAM.DE/LPNMR09](http://www.cs.uni-potsdam.de/LPNMR09)

## 10<sup>TH</sup> INTERNATIONAL CONFERENCE

ON LOGIC PROGRAMMING AND  
NONMONOTONIC REASONING



POTSDAM  
GERMANY

14 – 18 SEPT 2009

LPNMR09@CS.UNI-POTSDAM.DE

# Contents

<b>1</b>	<b>Program Overview</b>	<b>2</b>
<b>2</b>	<b>Campus Map</b>	<b>3</b>
<b>3</b>	<b>Registration</b>	<b>3</b>
<b>4</b>	<b>Internet Access</b>	<b>3</b>
<b>5</b>	<b>Detailed Schedule</b>	<b>4</b>
5.1	Tuesday . . . . .	4
5.2	Wednesday . . . . .	6
5.3	Thursday . . . . .	8
<b>6</b>	<b>Workshops</b>	<b>10</b>
6.1	WLP'09 . . . . .	10
6.2	SEA'09 . . . . .	12
6.3	Log-IC'09 . . . . .	13
<b>7</b>	<b>Invited Talks</b>	<b>14</b>
7.1	Integrating Answer Set Programming and Satisfiability Modulo Theories . . . . .	14
7.2	Logic-Based Modeling in Systems Biology . . . . .	14
7.3	SAT, SMT and Applications . . . . .	14
7.4	What I have learned from all these solver competitions . . . . .	15
7.5	Monadic Constraint Programming . . . . .	15
7.6	On Building a Competitive Conformant Planner . . . . .	15
7.7	Nonmonotonic Multi-Context Systems: State of the Art and Future Challenges . . . . .	15
7.8	Reasoning about Context in Ambient Intelligence Environments . . . . .	15
<b>8</b>	<b>Social Events</b>	<b>16</b>
8.1	Sanssouci Tour . . . . .	16
8.2	Boat Tour . . . . .	16
<b>9</b>	<b>Restaurants</b>	<b>17</b>

# 1 Program Overview

	Monday	Tuesday	Wednesday	Thursday
8:00				
8:30				
9:00	Invited Talk (SEA) Room: 03.06.HS02 (08:30-09:20)	Willkommen!	Invited Talk (WLP) Room: 03.06.HS02 (08:30-09:30)	Invited Talk III Room: 03.06.HS02 (08:30-09:30)
9:30	Tech Session I (SEA) Room: 03.06.HS02 (09:20-10:10)	Tech Session I Room: 03.06.HS02 (09:30-10:20)	App Session I Room: 03.06.HS02 (09:30-10:20)	Tech Session VI Room: 03.06.HS02 (09:30-10:20)
10:00	Break	Break	Break	Break
10:30	Tech Session II (SEA) Room: 03.06.HS02 (10:30-11:45)	Tech Session IIa/IIb Room: 03.06.HS02/HS01 (10:40-11:30)	App Session II Room: 03.06.HS02 (10:40-11:30)	Tech Session VII Room: 03.06.HS02 (10:40-11:30)
11:00	Panel (SEA) Room: 03.06.HS02 (11:45-12:30)	Short Paper Session Room: 03.06.HS02 (11:30-12:30)	Short App Paper Session Room: 03.06.HS02 (11:30-12:30)	System Session Room: 03.06.HS02 (11:30-12:30)
11:30				
12:00	Lunch (Mensa) (12:30-13:30)	Lunch (Mensa) (12:30-13:30)	Lunch (Mensa) + App Poster Room: Foyer (12:30-13:50)	Lunch (Mensa) (12:30-13:30)
12:30				
13:00				
13:30	Invited Talk I (Log-IC) Room: 03.06.HS02 (13:30-14:15)	Tech Session III/ Invited Talk (WLP) Room: 03.06.HS02/S14 (13:30-14:20)	Invited Talk II Room: 03.06.HS02 (13:50-14:50)	Tech Session VIIa/VIIb Room: 03.06.HS02/HS01 (13:30-14:20)
14:00	Tech Session (Log-IC) Room: 03.06.HS02 (14:15-15:00)	Tech Session IVa/IVb Room: 03.06.HS02/HS01 (14:20-15:10)	App Panel Room: 03.06.HS02 (14:50-15:40)	ASP Competition Room: 03.06.HS02 (14:20-15:10)
14:30	Break	Break + Tech Poster Room: Foyer (15:10-16:00)	Boat Tour (15:45-22:00)	Break + System Demo Room: Foyer (15:10-16:00)
15:00				
15:30	Invited Talk II (Log-IC) Room: 03.06.HS02 (15:15-16:00)			
16:00	Short Papers (Log-IC) Room: 03.06.HS02 (16:00-16:45)	Tech Session V Room: 03.06.HS02 (16:00-17:15)		Tech Session IX Room: 03.06.HS02 (16:00-16:50)
16:30	Panel (Log-IC) Room: 03.06.HS02 (16:45-17:30)			
17:00		Sanssouci Tour (17:20-22:00)		Future App Panel Room: 03.06.HS02 (16:50-17:50)
17:30				Auf Wiedersehen!
18:00				
18:30				
19:00				

## 2 Campus Map

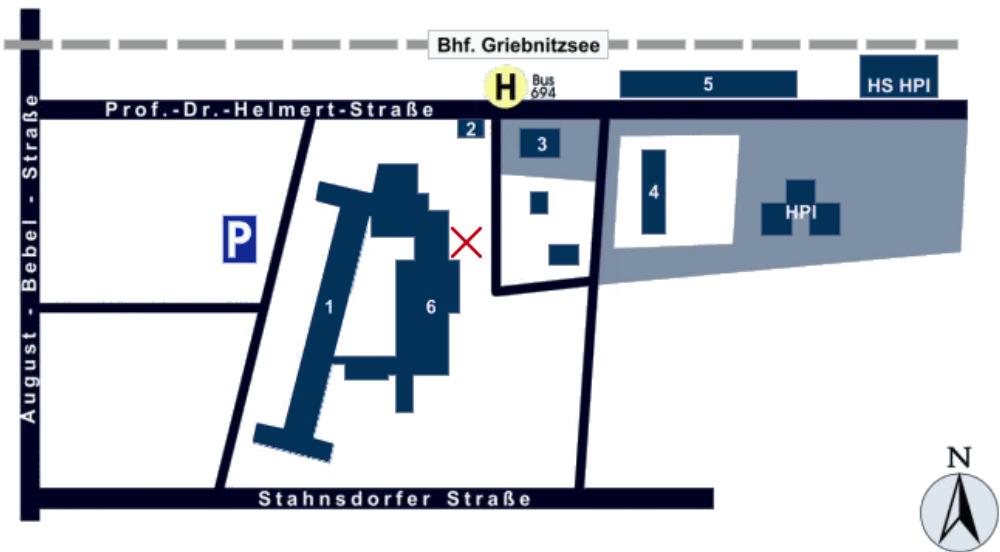


Figure 1: Campus Map

- LPNMR'09 and workshops take place in House 6
- The entrance is marked with a cross on the map
- The registration desk is in the foyer across from the entrance
- LPNMR'09 talks are either in Room HS02 or HS01
- SEA'09 and Log-IC'09 take place in Room HS02
- WLP'09 takes place in Room S14

## 3 Registration

- 08:00 - 10:30 (Mo, Tu, We)
- 12:30 - 13:30 (Mo, Tu)
- 15:00 - 16:00 (Mo, Tu)

## 4 Internet Access

- We provide internet access via VPN
- Username: lpnmr
- Password: Lpnmr09

## 5 Detailed Schedule

### 5.1 Tuesday

08:30 - 08:35 **Willkommen!** (Chair: Torsten Schaub, Room: 03.06.HS02)

08:35 - 09:30 **Invited Talk I** (Chair: Fangzhen Lin, Room: 03.06.HS02)  
Ilkka Niemelä:  
*Integrating Answer Set Programming and Satisfiability Modulo Theories* (Page 3)

09:30 - 10:20 **Technical Session I** (Chair: Tomi Janhunen, Room: 03.06.HS02)  
Mirosław Truszczyński:  
*Trichotomy results for reasoning with disjunctive logic* (Page 290)  
Jörg Pührer and Hans Tompits:  
*Casting Away Disjunction and Negation under a Generalisation of Strong Equivalence with Projection* (Page 251)

10:20 - 10:40 **Short break**

10:40 - 11:30 **Technical Session IIa** (Chair: Stefania Costantini, Room: 03.06.HS02)  
Michael Thomas:  
*The Complexity of Circumscriptive Inference in Post's Lattice* (Page 277)  
Jos de Bruijn and Stijn Heymans:  
*Complexity of the Stable Model Semantics for Queries on Incomplete Databases* (Page 95)

**Technical Session IIb** (Chair: Jia-Huai You, Room: 03.06.HS01)  
Reinhard Pichler, Stefan Ruemmele and Stefan Woltran:  
*Belief Revision with Bounded Treewidth* (Page 238)  
Tim Kimber, Krysia Broda and Alessandra Russo:  
*Induction on Failure: Learning Connected Horn Theories* (Page 160)

11:30 - 12:30 **Short Paper Session** (Chair: Mirosław Truszczyński, Room: 03.06.HS02)  
Vernon Asuncion and Yan Zhang:  
*Translating Preferred Answer Set Programs to Propositional Logic* (Page 381)  
Marcello Balduccini:  
*CR-Prolog as a Specification Language for Constraint Satisfaction Problems* (Page 387)  
Luis Moniz Pereira and Alexandre Miguel Pinto:  
*Layer Supported Models of Logic Programs* (Page 429)  
Guohua Liu:  
*Level Mapping Induced Loop Formulas for Weight Constraint and Aggregate Programs* (Page 423)  
Chiaki Sakama:  
*Social Default Theories* (Page 447)  
Agostino Dovier, Andrea Formisano and Enrico Pontelli:  
*Representing Multi-Agent Planning in CLP* (Page 405)  
Laura Giordano, Valentina Gliozzi, Nicola Olivetti and Gian Luca Pozzato:  
*Prototypical reasoning with low complexity Description Logics: preliminary results* (Page 411)

Chitta Baral, Tran Son and Enrico Pontelli:  
*Modeling Multi-Agent Domains in an Action Languages: an Empirical Study using C* (Page 393)

Duygu Cakmak, Esra Erdem and Halit Erdogan:  
*Computing weighted solutions in answer set programming* (Page 399)

Luke Hopton, Owen Cliffe, Marina De Vos and Julian Padgett:  
*AQL: A Query Language for Action Domains Modelled using Answer Set Programming* (Page 417)

Mario Ornaghi, Camillo Fiorentini, Alberto Momigliano and Francesco Pagano:  
*Applying ASP to UML model validation.* (Page 435)

Mauricio Osorio Galindo and Simone Pascucci:  
*The Logical Consequence Role in LPNMR: a Parameterized Computation Approach* (Page 441)

12:30 - 13:30 **Lunch break**

13:30 - 14:20 **Technical Session III** (Chair: Wolfgang Faber, Room: 03.06.HS02)

Claire Lefèvre and Pascal Nicolas:  
*A First Order Forward Chaining Approach for Answer Set Computing* (Page 186)

Tomi Janhunen, Ilkka Niemelä and Mark Sevalnev:  
*Computing Stable Models via Reductions to Difference Logic* (Page 134)

**Invited Talk (WLP)** (Room: 03.06.S14)

Neng-Fa Zhou:  
*What I have learned from all these solver competitions*

14:20 - 15:10 **Technical Session IVa** (Chair: Marc Denecker, Room: 03.06.HS02)

Antonis Bikakis and Grigoris Antoniou:  
*Argumentation about Context in Ambient Intelligence* (Page 30)

Gerhard Brewka and Thomas Eiter:  
*Argumentation Context Systems: A Framework for Abstract Group Argumentation* (Page 43)

**Technical Session IVb** (Chair: Fangzhen Lin, Room: 03.06.HS01)

Gayathri Namasivayam and Mirosław Truszczyński:  
*Simple Random Logic Programs* (Page 212)

Emilia Oikarinen and Matti Järvisalo:  
*Max-ASP: Maximum Satisfiability of Answer Set Programs* (Page 225)

15:10 - 16:00 **Break + Short Paper Poster Session**

16:00 - 17:15 **Technical Session V** (Chair: Joohyung Lee, Room: 03.06.HS02)

Yisong Wang, Jia-Huai You, Li-Yan Yuan and Mingyi Zhang:  
*Weight Constraint Programs with Functions* (Page 316)

Pedro Cabalar, David Pearce and Agustín Valverde:  
*A revised concept of safety for general answer set programs* (Page 56)

Francesco Calimeri, Susanna Cozza, Giovambattista Ianni and Nicola Leone:  
*Magic Sets for the Bottom-up Evaluation of Finitely Recursive Programs* (Page 69)

17:20 - 22:00 **Sanssouci Tour** (see Section 8)

## 5.2 Wednesday

08:30 - 09:30 **Invited Talk (WLP)** (Room: 03.06.HS02)

Tom Schrijvers:

*Monadic Constraint Programming*

09:30 - 10:20 **Application Session I** (Chair: Andrea Formisano, Room: 03.06.HS02)

James Delgrande, Torsten Grote and Aaron Hunter:

*A General Approach to the Verification of Cryptographic Protocols using Answer Set Programming* (Page 342)

Johannes Oetsch, Martina Seidl, Hans Tompits and Stefan Woltran:

*ccT on Stage: Generalised Uniform Equivalence Testing for Verifying Student Assignment Solutions* (Page 368)

10:20 - 10:40 **Break**

10:40 - 11:30 **Application Session II** (Chair: Marina De Vos, Room: 03.06.HS02)

Salvatore Maria Ielpa, Salvatore Iiritano, Nicola Leone, and Francesco Ricca:

*An ASP-Based System for e-Tourism* (Page 355)

Ozan Caldiran, Kadir Haspalamutgil, Abdullah Ok, Can Palaz, Esra Erdem and Volkan Patoglu:

*Bridging the Gap between High-Level Reasoning and Low-Level Control* (Page 329)

11:30 - 12:30 **Short Application Paper Session** (Chair: Tran Cao Son, Room: 03.06.HS02)

Giovanni Grasso, Salvatore Iiritano, Nicola Leone, and Francesco Ricca:

*Some DLV Applications for Knowledge Management* (Page 561)

Harold Ishebabi, Philipp Mahr, Christophe Bobda, Martin Gebser and Torsten Schaub:

*Application of ASP for Automatic Synthesis of Flexible Multiprocessor Systems from Parallel Programs* (Page 567)

Viren Kumar and James Delgrande:

*Using ASP To Solve the Multicore Scheduling Problem* (Page 573)

Georg Boenn, Martin Brain, Marina De Vos and John ffitch:

*ANTON: Composing Logic and Logic Composing* (Page 513)

Owen Cliffe, Marina De Vos and Julian Padget:

*Modelling Normative Frameworks using Answer Set Programming* (Page 519)

Tom Crick, Martin Brain, Marina De Vos and John Fitch:

*Generating Optimal Code using Answer Set Programming* (Page 525)

Alessandro Dal Palù, Agostino Dovier and Enrico Pontelli:

*Logic Programming Techniques in Protein Structure Determination: Methodologies and Results* (Page 531)

Esra Erdem:

*PHYLO-ASP: Phylogenetic Systematics using Answer Set Programming* (Page 537)

Esra Erdem, Ozan Erdem and Ferhan Ture:

*HAPLO-ASP: Haplotype Inference using Answer Set Programming* (Page 543)

Francois Gagnon and Babak Esfandiari:

*Using Answer Set Programming to Enhance Operating System Discovery* (Page 549)

Alessandra Mileo, Davide Merico and Roberto Bisiani:

*Non-monotonic reasoning and Wireless Sensor Networks for Intelligent Monitoring: the SINDI system* (Page 555)

12:30 - 13:50 **Lunch + Short Application Poster Session**

13:50 - 14:50 **Invited Talk II** (Chair: Torsten Schaub, Room: 03.06.HS02)

Alexander Bockmayr:

*Logic-Based Modeling in Systems Biology* (Page 2)

14:50 - 15:40 **Application Panel** (Chair: Esra Erdem and Agostino Dovier, Room: 03.06.HS02)

15:45 - 22:00 **Boat Tour** (see Section 8)

### 5.3 Thursday

08:30 - 09:30 **Invited Talk III** (Chair: Esra Erdem, Room: 03.06.HS02)

Armin Biere:

*SAT, SMT and Applications* (Page 1)

09:30 - 10:20 **Technical Session VI** (Chair: Pascal Nicolas, Room: 03.06.HS02)

Wolfgang Faber and Stefan Woltran:

*Manifold Answer-Set Programs for Meta-Reasoning* (Page 108)

Marcello Balduccini:

*How Flexible Is Answer Set Programming? An Experiment in Formalizing Common-sense in ASP* (Page 4)

10:20 - 10:40 **Break**

10:40 - 11:30 **Technical Session VII** (Chair: Ilkka Niemelä, Room: 03.06.HS02)

Yi-Dong Shen and Jia-Huai You:

*A Default Approach to Semantics of Logic Programs with Constraint Atoms* (Page 264)

Joohyung Lee and Yunsong Meng:

*On Reductive Semantics of Aggregates in Answer Set Programming* (Page 173)

11:30 - 12:30 **System Paper Session** (Chair: Robert Mercer, Room: 03.06.HS02)

Annamaria Bria, Wolfgang Faber and Nicola Leone:

*nfn2dlp and nfnssolve: Normal Form Nested Programs Compiler and Solver* (Page 453)

Francesco Calimeri, Susanna Cozza, Giovambattista Ianni and Nicola Leone:

*An ASP System with Functions, Lists, and Sets* (Page 459)

Enrico Ellguth, Martin Gebser, Markus Gusowski, Benjamin Kaufmann, Roland Kaminski, Stefan Liske, Torsten Schaub, Lars Schneidenbach and Bettina Schnor:

*A Simple Distributed Conflict-Driven Answer Set Solver* (Page 465)

Marc Finthammer, Christoph Beierle, Benjamin Berger and Gabriele Kern-Isbner:

*An Implementation of Belief Change Operations Based on Probabilistic Conditional Logic* (Page 471)

Martin Gebser, Roland Kaminski, Max Ostrowski, Torsten Schaub and Sven Thiele:

*On the Input Language of ASP Grounder Gringo* (Page 477)

Martin Gebser, Benjamin Kaufmann and Torsten Schaub:

*The Conflict-Driven Answer Set Solver clasp: Progress Report* (Page 483)

Joohyung Lee and Ravi Palla:

*System F2LP - Computing Answer Sets of First-Order Formulas* (Page 489)

Claire Lefèvre and Pascal Nicolas:

*The First Version of a new ASP Solver : ASPeriX* (Page 495)

Nicola Leone, Francesco Ricca and Giorgio Terracina:

*An ASP-Based Data Integration System* (Page 501)

Victor Noel and Antonis Kakas:

*Gorgias-C: Extending Argumentation with Constraint Solving* (Page 507)

12:30 - 13:30 **Lunch**

13:30 - 14:20 **Technical Session VIIIa** (Chair: Pedro Cabalar Fernández, Room: 03.06.HS02)

Marcello Balduccini:

*Splitting a CR-Prolog Program* (Page 17)

Ping Hou and Marc Denecker:

*A Deductive System for FO(ID) Based on Least Fixpoint Logic* (Page 121)

**Technical Session VIIIb** (Chair: Chiaki Sakama, Room: 03.06.HS01)

Loizos Michael and Antonis Kakas:

*Knowledge Qualification through Argumentation* (Page 199)

Hui Wan and Michael Kifer:

*Belief Logic Programming: Uncertainty Reasoning with Correlation of Evidence* (Page 303)

14:20 - 15:10 **ASP Competition** (Chair: Stefan Woltran, Room: 03.06.HS02)

Marc Denecker, Joost Vennekens, Stephen Bond, Martin Gebser, and Mirosław Truszczyński: *The Second Answer Set Programming Competition* (Page 605)

15:10 - 16:00 **Break + System Demos**

16:00 - 16:50 **Technical Session IX** (Chair: Jim Delgrande, Room: 03.06.HS02)

Matti Järvisalo, Emilia Oikarinen, Tomi Janhunen and Ilkka Niemelä:

*A Module-Based Framework for Multi-Language Constraint Modeling* (Page 147)

Minh Dao-Tran, Thomas Eiter, Michael Fink and Thomas Krennwallner:

*Relevance-driven Evaluation of Modular Nonmonotonic Logic Programs* (Page 82)

16:50 - 17:50 **Special Session on Future Applications** (Chair: Esra Erdem and Agostino Dovier, Room: 03.06.HS02)

Gerhard Brewka and Thomas Eiter:

*From Data Integration Towards Knowledge Mediation* (Page 579)

Stefania Costantini:

*Integrating Answer Set Modules into Agent Programs* (Page 582)

James Delgrande:

*What Next for ASP?* (Page 585)

Marc Denecker and Joost Vennekens:

*Using Lightweight Inference to Solve Lightweight Problems* (Page 588)

Agostino Dovier and Enrico Pontelli:

*Present and Future Challenges for ASP Systems (Extended Abstract)* (Page 591)

Marina De Vos:

*ASP: The Future is Bright. A Position Paper* (Page 594)

Nicola Leone:

*Exploiting ASP in Real-World Applications: Main Strengths and Challenges* (Page 597)

Torsten Schaub:

*Making your hands dirty inspires your brain! Or how to switch ASP into Production Mode* (Page 599)

Jia-Huai You:

*Towards an Embedded Approach to Declarative Problem Solving in ASP* (Page 602)

17:50 - 18:00 **Auf Wiedersehen!**

## 6 Workshops

### 6.1 WLP'09

The 23rd Workshop on (Constraint) Logic Programming on (constraint) logic programming is the annual meeting of the Society of Logic Programming (GLP e.V.) and brings together researchers interested in logic programming, constraint programming, and related areas like databases, artificial intelligence and operations research. Previous workshops have been held in Germany, Austria and Switzerland. The technical program of the workshop will include an invited talk, presentations of refereed papers and demo presentations.

#### Tuesday

08:30 - 09:30 **Invited Talk at LPNMR** (Room: 03.06.HS02)

Ilkka Niemelä:  
*Integrating Answer Set Programming and Satisfiability Modulo Theories*

09:30 - 10:20 **Databases** (Room: 03.06.S14)

Michael Hanus and Sven Koschnicke:  
*An ER-based Framework for Declarative Web Programming*  
Dietmar Seipel:  
*Practical Applications of Extended Deductive Databases in Datalog<sup>^s</sup>*

10:20 - 10:40 **Break**

10:40 - 11:55 **Answer Set Programming** (Room: 03.06.S14)

Martin Gebser, Henrik Hinrichs, Torsten Schaub and Sven Thiele:  
*xpanda: A (Simple) Preprocessor for Adding Multi-valued Propositions to ASP*  
Pedro Cabalar:  
*Existential Quantifiers in the Rule Body*

Johannes Oetsch, Martin Schwengerer and Hans Tompits:  
*Kato: A Plagiarism-Detection Tool for Answer-Set Programs*

11:55 - 12:20 **Theory of Logic Programming** (Room: 03.06.S14)

Heinrich Herre and Axel Hummel:  
*A Paraconsistent Semantics for Generalized Logic Programs*

12:20 - 13:30 **Lunch Break**

13:30 - 14:20 **Invited Talk at WLP** (Room: 03.06.S14)

Neng-Fa Zhou:  
*What I have learned from all these solver competitions*

14:20 - 15:35 **Theory (of Logic Programming)** (Room: 03.06.S14)

Heinrich Herre and Axel Hummel:  
*Stationary Generated Models of Generalized Logic Programs*  
John Gallagher and Gourinath Banda:  
*Constraint-Based Abstraction of a Model Checker for Infinite State Systems*  
Stefan Brass:  
*Range Restriction for General Formulas*

15:35 - 16:00 **Break**

16:00 - 17:15 **GLP Meeting** (Room: 03.06.S14)

17:20 - 22:00 **Sanssouci Tour** (see Section 8)

## Wednesday

08:30 - 09:30 **Invited Talk WLP** (Room: 03.06.HS02)

Tom Schrijvers:

*Monadic Constraint Programming*

09:30 - 10:20 **CHR** (Room: 03.06.S14)

Slim Abdennadher, Haythem Ismail and Frederick Khoury:

*Transforming Imperative Algorithms to Constraint Handling Rules*

Hariolf Betz, Frank Raiser and Thom Fruehwirth:

*Persistent Constraints in Constraint Handling Rules*

10:20 - 10:40 **Break**

10:40 - 11:30 **Practice of LP** (Room: 03.06.S14)

Hans-Joachim Goltz and Norbert Pieth:

*A Tool for Generating Partition Schedules of Multiprocessor Systems*

Ulrich Geske and Hans-Joachim Goltz:

*Efficiency of Difference-List Programming*

## 6.2 SEA'09

The 2nd International Workshop on Software Engineering for Answer Set Programming aims to bring together researchers who are currently working on or are interested in the development of dedicated tools, techniques, and methodologies to facilitate the development of answer set programs.

### Monday

8:30 - 9.20 **Invited Talk** (Room: 03.06.HS02)

Tran Cao Son:

*On Building a Competitive Conformant Planner*

9.20 - 10.10 **Technical Session I** (Room: 03.06.HS02)

R. Confalonieri, J. C. Nieves, and J. Vázquez-Salceda:

*A Preference Meta-Model for Logic Programs with Possibilistic Ordered Disjunction*

S. Woltran and W. Faber:

*A Framework for Programming with Module Consequences*

10.10 - 10.30 **Coffee break**

10.30 - 11.45 **Technical Session II** (Room: 03.06.HS02)

M. Brain, O. Cliffe and M. De Vos:

*A Pragmatic Programmer's Guide for Answer Set Programming*

M. Gelfond and D. Inclezan:

*Yet Another Modular Action Language*

F. Calimeri, N. Leone, F. Ricca, P. Veltri:

*A Visual Tracer for DLV*

11.45 - 12.30 **Panel** (Room: 03.06.HS02)

*Experiences in Modelling Applications: Practise and Future*

### 6.3 Log-IC'09

The 1st International Workshop on Logic-Based Interpretation of Context: Modelling and Applications will provide a forum for researchers investigating context-aware applications and context-based reasoning with the goal of sharing and comparing their views on the efficacy of different context representation and context interpretation frameworks.

#### Monday

13:30 - 14.15 **Invited Talk I** (Room: 03.06.HS02)

Gerhard Brewka:

*Nonmonotonic Multi-Context Systems: State of the Art and Future Challenges*

14:15 - 15:00 **Technical Session** (Room: 03.06.HS02)

Cristina Manfredotti, Enza Messina, David Fleet:

*Relations as Context to improve Multi-Target Tracking and Activity Recognition*

Thomas Eiter, Michael Fink, Peter Schuller, Antonius Weinzierl:

*Towards Diagnosing Inconsistency in nonmonotonic Multi-context Systems*

15:00 - 15:15 **Coffee break**

15:15 - 16.00 **Invited Talk II** (Room: 03.06.HS02)

Grigoris Antoniou:

*Reasoning about Context in Ambient Intelligence Environments*

16:00 - 16:45 **Short Paper Session** (Room: 03.06.HS02)

Alessandra Mileo:

*Towards Characterization of Contexts as a Knowledge Representation Issue*

Sebastian Bader, Christoph Burghardt, Thomas Kirste:

*From Symbolic to Probabilistic Models*

Giuseppe Primiero:

*A Constructive Modal Semantics for Contextual Verification*

16:45 - 17.30 **Panel Discussion** (Room: 03.06.HS02)

## 7 Invited Talks

### 7.1 Integrating Answer Set Programming and Satisfiability Modulo Theories

**Speaker:** Ilkka Niemelä (LPNMR, Tuesday: 08:30 - 09:30, Room: 03.06.H02)

**Abstract:** In this talk we consider the problem of integrating answer set programming (ASP) and satisfiability modulo theories (SMT). We discuss a characterization of stable models of logic programs based on Clark's completion and simple difference constraints. The characterization leads to a method of translating a ground logic program to a linear size theory in difference logic, i.e. propositional logic extended with difference constraints between two integer variables, such that stable models of the program correspond to satisfying assignments of the resulting theory in difference logic. Many of the state-of-the-art SMT solvers support directly difference logic. This opens up interesting possibilities. On one hand, any solver supporting difference logic can be used immediately without modifications as an ASP solver for computing stable models of a logic program by translating the program to a theory in difference logic. On the other hand, SMT solvers typically support also other extensions of propositional logic such as linear real and integer arithmetic, fixed-size bit vectors, arrays, and uninterpreted functions. This suggests interesting opportunities to extend ASP languages with such constraints and to provide effective solver support for the extensions. Using the translation an extended language including logic program rules and, for example, linear real arithmetic can be translated to an extension of propositional logic supported by current SMT solvers. We discuss the effectiveness of state-of-the-art SMT solvers as ASP solvers and the possibilities of developing extended ASP languages based on SMT solver technology.

### 7.2 Logic-Based Modeling in Systems Biology

**Speaker:** Alexander Bockmayr (LPNMR, Wednesday: 13:50 - 14:50, Room: 03.06.H02)

**Abstract:** Systems biology is a new interdisciplinary research field that has received considerable attention in recent years. While traditional molecular biology studies the various components of a biological system (e.g. genes, RNAs, proteins) in isolation, systems biology aims to understand how these components interact in order to perform complex biological functions. A variety of mathematical and computational methods is currently being used to model and analyze biological systems, ranging from continuous, stochastic, and discrete to various hybrid approaches. In this talk, we focus on logic-based methods for systems biology, which arise at two distinct levels. On the one hand, Boolean or multi-valued logics provide a natural way to represent the structure of a regulatory biological network, which is given by positive and negative interactions (i.e., activation and inhibition) between its different components. On the other hand, temporal logics (e.g. CTL or LTL) may be used to reason about the dynamics of a biological system, represented by a state transition graph or Kripke model.

### 7.3 SAT, SMT and Applications

**Speaker:** Armin Biere (LPNMR, Thursday: 08:30 - 09:30, Room: 03.06.H02)

**Abstract:** SAT solving has gained tremendous interest. On the practical side there have been considerable performance improvements, due to new highly efficient algorithms, new heuristics, and optimized data structures. There are new applications and reformulations of important classical problems, mainly in the context of formal methods, where SAT solving is also applied successfully in an industrial setting. These applications range from equivalence checking, configuration, over model checking to test case generation. SAT is becoming one of the most important core technology in all these areas. Many applications actually use Satisfiability Modulo Theory (SMT), which can be seen as an extension of SAT solving. SMT

has its roots in automated theorem proving. But it heavily relies on SAT technology. We discuss some key technologies in practical SAT solving, e.g. how to write a fast solver, some aspects in lifting propositional SAT technology to richer domains, how competitions can help to improve the state-of-the-art and finally touch on applications in model checking, hardware and software verification.

## **7.4 What I have learned from all these solver competitions**

**Speaker:** Neng-Fa Zhou (WLP, Tuesday: 13:30 - 14:20, Room: 03.06.HS14)

## **7.5 Monadic Constraint Programming**

**Speaker:** Tom Schrijvers (LPNMR/WLP, Wednesday: 08:30 - 09:30, Room: 03.06.H02)

## **7.6 On Building a Competitive Compliant Planner**

**Speaker:** Tran Cao Son (SEA, Monday: 08:30 - 09:20, Room: 03.06.H02)

## **7.7 Nonmonotonic Multi-Context Systems: State of the Art and Future Challenges**

**Speaker:** Gerhard Brewka (Log-IC, Monday: 13:30 - 14:15, Room: 03.06.H02)

## **7.8 Reasoning about Context in Ambient Intelligence Environments**

**Speaker:** Grigoris Antoniou (Log-IC, Monday: 15:15 - 16:00, Room: 03.06.H02)

## 8 Social Events

### 8.1 Sanssouci Tour

After the scientific program part on Tuesday, we will go by bus from the conference site to Park Sanssouci. On the tracks of Frederick the Great (King of Prussia in 1740-1786), a guided walking tour will lead us through the beautiful park, past Sanssouci Palace donating its name to the large park around, and eventually to the New Palace. The Communs, located directly opposite to the westward-opening court of honor of the New Palace, were originally housing the royal kitchens, utilities, gardeners' shops, palace guards, and servants. Nowadays, the Communs are used by the University of Potsdam as part of its main campus. The campus will host LPNMR and WLP reception, including a buffet and drinks.

- **Departure** from Griebnitzsee: 17:20
- **Departure** from New Palace: 22:00
- There are shuttle buses for both departures; please be on time because the buses belong to public transport.
- The return bus stops at Potsdam main station and at Griebnitzsee.
- In case you want to leave earlier, you can also use the regular bus service from bus stop Neues Palais:
  - Bus Line 605: ..., 20:57, 21:17, 21:57, 22:17, 22:57, ...
  - Bus Line 606: ..., 21:37, 22:37, ...

### 8.2 Boat Tour

After the scientific program part on Wednesday, we will embark a boat at Griebnitzsee. Following the course of the Havel river, we will pass by Babelsberg and Potsdam's city center, where the Isle of Friendship divides the Havel into two arms. Eventually, we will cross half of the Templiner Lake and disembark the boat close to the brewery restaurant Braumanufaktur Forsthaus Templin. After a guided tour through the brewery, we will have dinner in the affiliated restaurant. The dinner can be accompanied with several home-brewed, organic beer specialties. Beyond the beautiful scenery, organic beers, and solid food, the award ceremony to this year's answer set programming competition will be another highlight at the dinner.

- **Departure** from Griebnitzsee: 15:45 (by foot to boat; 5min walk)
- **Departure** from Forsthaus Templin: 22:00 (by bus)
- Please be on time for boat departure.
- The return bus stops at Potsdam main station and at Griebnitzsee.
- In case you want to leave earlier, you can also use the regular bus service from bus stop Forsthaus Templin:
  - Bus Line 607: ..., 20:36, 22:03, 00:03

Taxis are also round-the-clock available on short call. The phone numbers for Potsdam and Berlin, respectively, are:

- Potsdam: +49331292929
- Berlin: +498000261026

## 9 Restaurants

- Mensa: University restaurant
  - Located next to the lecture rooms
  - They offer four different dishes (one vegetarian)
  - Every dish includes a dessert
  - There is also a salad bar (additional charge)
  - You can pay cash only!
  - Further offers include snacks, cakes and drinks
  - Website: <http://www.studentenwerk-potsdam.de/en/speiseplan/>
- For further (yet more remote) restaurants see Figure 2
  1. The Mensa of the “Filmpark Babelsberg”
  2. The Italian restaurant “Piazza Toscana”
  3. The restaurant of the “Hotel am Griebnitzsee”
  4. The pub “Griebnitzsee das Lokal”
  5. A diner that offers “Döner”
  6. The Mensa of the university
  7. The cafeteria of the HPI (offers a daily dish and snacks)



Figure 2: Restaurants close to the university (©2009 Google - Map data ©2009 Tele Atlas)