

Institute of Computer Science  
 The University of Wrocław  
 Wybrzeże Joliot-Curie 15  
 Wrocław, Poland



# The 23<sup>rd</sup> International Conference on Automated Deduction

Sunday, July 31, 2011

## Workshops

**UNIF 2011:** The International Workshop on Unification

**ATE 2011:** The First Workshop on Automated Theory Engineering

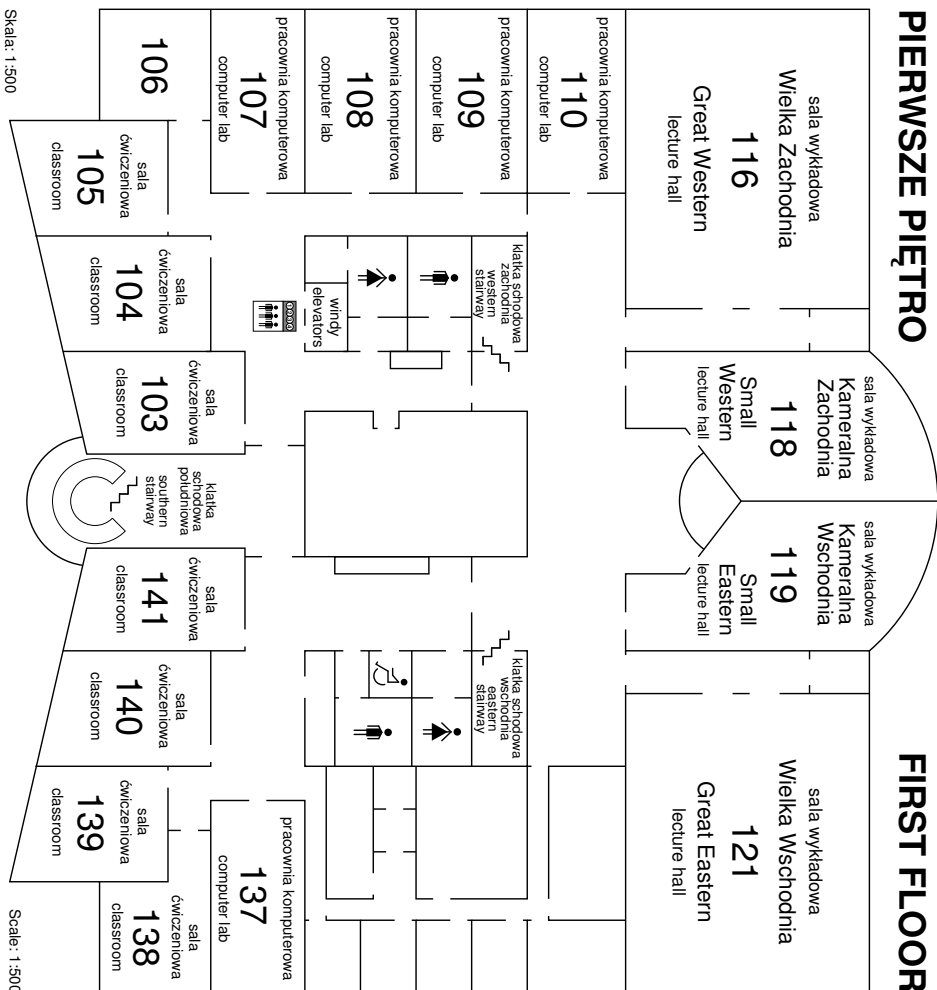
**Thedu 2011:** CTP Components for Educational Software

## Tutorials

Practical Reasoning with Quantified Boolean Formulas

Model Checking Modulo Theories: Theory and Practice

Practical Computer Formalization of Mathematics Using Mizar



Skala: 1:500

Scale: 1:500

All CADE'23 satellite events will take place at the first floor  
 of the building of the Institute of Computer Science

Sunday, July 31, 2011

CADE'23 Satellite Tutorials

CADE'23 Satellite Workshops

Practical Reasoning with Quantified Boolean Formulas

The First Workshop on Automated Theory Engineering

CTP Components for Educational Software

The International Workshop on Unification

Morning session  
9:00–10:00

*Morning session*  
– Motivation  
– History  
– Application  
– Basics

Invited talk by **J. Urban**:  
*An Overview of Methods for Large-Theory Automated Theory Proving*

Opening

Invited talk by **Christopher Lynch**:  
*Unification in Cryptographic Protocol Analysis*

J. Saludes, S. Xambó,  
*The GF Mathematics Library*

Coffee break 10:00–10:30

Noon session  
10:30–12:30

*Noon session*  
– Decision Procedures  
– Preprocessing  
– State-of-the-Art  
– Challenges

M. Beeson, J. Halcomb, W. Mayer,  
*Inconsistencies in the Process Specification Language (PSL)*

M. Wenzel, B. Wolff,  
*Isabelle/PIDE as Platform for Educational Tools*

F. Baader, T. B. Nguyen, S. Borgwardt, B. Morawska,  
*Computing Local Unifiers in the Description Logic EL without the Top Concept*

H.-H. Dang, B. Möller,  
*Simplifying Pointer Kleene Algebra*

G. Allais, *Coq with Power Series*

J. Otop, *Unification of Anti-Terms*

P. James, M. Roggenbach,  
*Designing Domain Specific Languages for Verification: First Steps*

C. Kaliszyk, *Formalized Computational Origami in Education*

Ł. Stafiniak, *Joint Constraint Abduction Problems*

F. Marić, P. Janičić, I. Petrović, D. Petrović,  
*Formalization and Implementation of Algebraic Methods in Geometry*

W. Dzik, P. Wojtylak, *Projective Unifiers in Modal Logics*

Lunch  
12:30–14:00

Practical Computer Formalization of Mathematics Using Mizar

Model Checking Modulo Theories: Theory and Practice

Afternoon session  
14:00–15:30

Practical Computer Formalization of Mathematics Using Mizar  
*Tutorial afternoon session*

Model Checking Modulo Theories: Theory and Practice  
*Tutorial afternoon session*

Invited talk by **T. Griffin**:  
*Do Formal Methodists Have Bell-Shaped Heads?*

F. Botana, M. A. Abánades,  
*Automatic Deduction in Dynamic Geometry using Sage*

S. Ciobaca, *Computing Finite Variants for Subterm Convergent Rewrite Systems*

V. Komendantsky, *Packed Views of Pre-Structured Data*

C. Rau, M. Schmidt-Schauß, *A Unification Algorithm to Compute Overlaps in a Call-by-Need Lambda-Calculus with Variable-Binding Chains*

V. Naudžiūnas, T. Griffin,  
*A Domain-Specific Language for the Specification of Path Algebras*

V. Santos, P. Quesma,  
*WebGeometryLab*

B. Kavanagh, J. Cheney,  
*Higher-Order Unification for the  $\lambda_{\alpha\beta}$  Calculus*

Coffee break 15:30–16:00

Evening session  
16:00–18:00

Practical Computer Formalization of Mathematics Using Mizar  
*Tutorial evening session*

Model Checking Modulo Theories: Theory and Practice  
*Tutorial evening session*

W. Guttmann, G. Struth, T. Weber,  
*A Repository for Tarski-Kleene Algebras*

W. Schreiner, *Computer-Assisted Program Reasoning Based on a Relational Semantics of Programs*

R. Verma, W. Guo, *Does Unification Help in Normalization?*

Automated Theorem Engineering: Discussion Session

R.-J. Back, J. Eriksson,  
*Correct-by-Construction Programming in the Socos Environment*

S. Erbaturo, S. Escobar, D. Kapur, et al., *Asymmetric Unification: A New Unification Paradigm for Cryptographic Protocol Analysis*

W. Neuper, *User Guidance Generated from "Computation Plus Deduction"—the Learner's Perspective*

UNIF 2011 Business Meeting

S. Autexier, D. Dietrich, M. Schiller,  
*Cognitive Tutoring in Mathematics Based on Assertion Level Reasoning and Proof Strategies*

Room 7

Room 103

Room 118

Room 141

Room 119

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# The 23<sup>rd</sup> International Conference on Automated Deduction

Monday, August 1, 2011

## Workshops

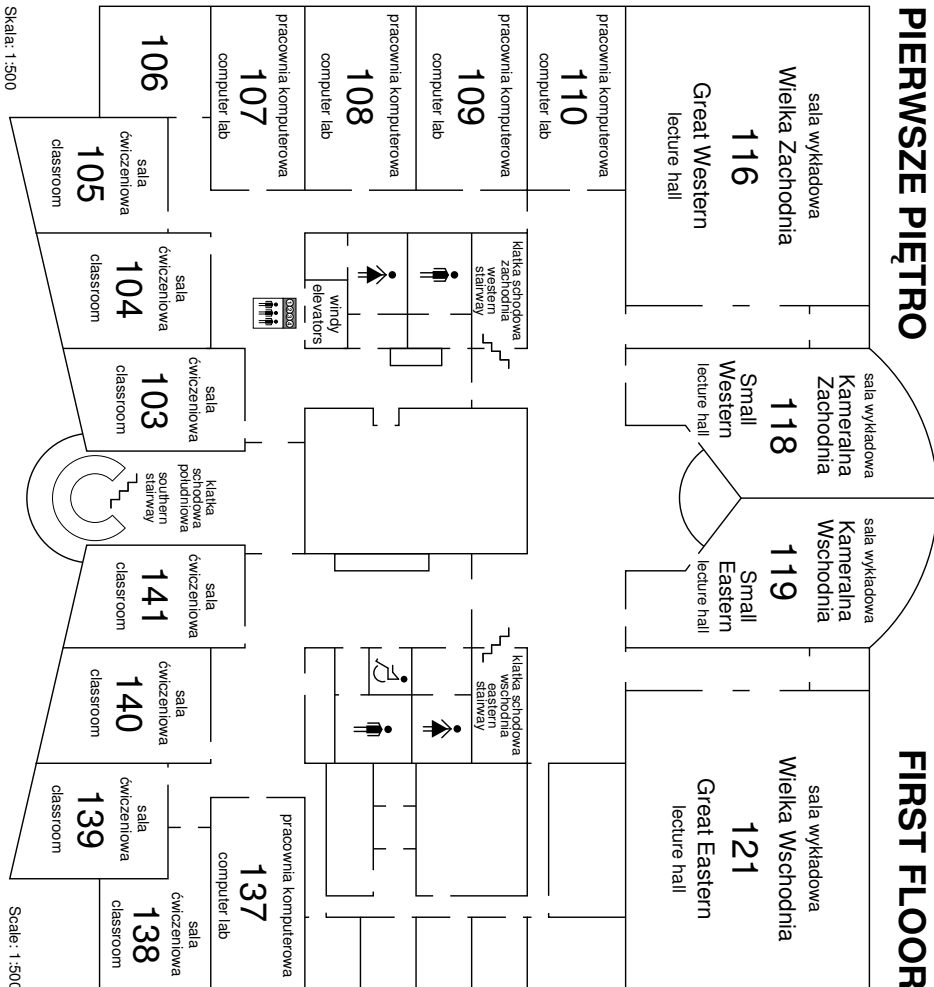
**BOOGIE 2011:** The First International Workshop on  
 Intermediate Verification Languages

**PSATTT 2011:** International Workshop on  
 Proof Search in Axiomatic Theories and Type Theories

**PxTP 2011:** The First Workshop on  
 Proof eXchange for Theorem Proving

## Tutorials

First-Order Theorem Proving and Vampire  
 Grammatical Framework: A Hands-On Introduction  
 Computational Logic and Human Thinking



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 of the building of the Institute of Computer Science

Monday, August 1, 2011

CADE'23 Satellite Tutorials

CADE'23 Satellite Workshops

First-Order Theorem Proving and Vampire

1<sup>st</sup> International Workshop on Intermediate Verification Languages    Int'l Workshop on Proof Search in Axiomatic Theories & Type Theories    1<sup>st</sup> Workshop on Proof eXchange for Theorem Proving

Morning session  
9:00–10:00

Session 1, 9:00–10:00  
Andrei Voronkov:  
*First-order theorem proving and Vampire*

Invited talk by **Viktor Kuncak**

Invited talk by **Jasmin Blanchette**:  
*Proof Search and Proof Reconstruction in Sledgehammer*  
Joint session in room 119

Coffee break 10:00–10:30

Session 1 contd., 10:30–11:00  
Andrei Voronkov:  
*First-order theorem proving and Vampire*

M. Backes, C. Hritcu, T. Tarrach,  
*Automatically Verifying Typing Constraints for a Data Processing Language*

F. Besson, P.-E. Cornilleau, D. Pichardie, *A Nelson-Oppen Based Proof System Using Theory Specific Proof Systems*

Noon session  
10:30–12:30

Session 2, 11:00–11:45  
Kryštof Hoder:  
*Vampire usage and demo*

J. Tschannen, C. A. Furia, M. Nordio, B. Meyer, *Verifying Eiffel Programs with Boogie*

G. Sutcliffe, C. Chang, D. Mcguinness, T. Lebo, Li Ding, P. Pinheiro Da Silva, *Combining Proofs to Form Different Proofs*

Session 3, 11:45–12:30  
Laura Kovács:  
*New features and applications of Vampire*

J. Guitton, J. Kanig, Y. Moy, *Why Hi-Lite Ada?*

V. Komendantsky, *Regular Expression Containment as a Proof Search Problem*

P. Rudnicki, J. Urban, *Escape to ATP for Mizar*

S. Lahiri, C. Hawblitzel, M. Kawaguchi, H. Rebelo, *Mutual Summaries: Unifying Program Comparison Techniques*

P. Fu, A. Stump, J. Vaughan, *A Framework for Internalizing Relations into Type Theory*

S. Merz, H. Vanzetto, *Towards Certification of TLA+ Proof Obligations with SMT Solvers*

Lunch  
12:30–14:00

Grammatical Framework: A Hands-On Introduction

Computational Logic and Human Thinking

Afternoon session  
14:00–15:30

- The place of GF on the map of linguistics, computer science, and logic.
- Building a simple translation system and its web interface.
- Scaling up a translation system: problems and tools.
- Using the GF Resource Grammar Library.
- Specifying the translation system for the hands-on session.

Computational Logic and Human Thinking  
*Tutorial afternoon session*

J.-C. Filliatre, C. Marché, F. Bobot, A. Paskevich, *Why3: Shepherd Your Herd of Provers*

Invited talk by **John Harrison**  
Joint session in room 119

M. Botincan, D. Distefano, M. Dodds, R. Grigore, D. Naudziuniene, M. Parkinson, *coreStar: The Core of jStar*

A. Lal, S. Qadeer, S. Lahiri, *Corral: A Whole-Program Analyzer for Boogie*

M. Armand, G. Faure, B. Grégoire, C. Keller, L. Thery, *Verifying SAT and SMT in Coq for a Fully Automated Decision Procedure*

Coffee break 15:30–16:00

Evening session  
16:00–18:00

- Hands-on session: porting the translation system to a new language.
- More advanced GF: grammars and reasoning.
- More advanced GF: computational grammars for the world.

Computational Logic and Human Thinking  
*Tutorial evening session*

Open Discussion:  
*Next Several Years of Intermediate Verification Languages*

G. Burel, *Consistency Implies Cut Admissibility*

S. Böhme, T. Weber, *Designing Proof Formats: A User's Perspective*

J. Gao, *Clausal Presentation of Theories in Deduction Modulo Languages*

F. Besson, P. Fontaine, L. Théry, *A Flexible Proof Format for SMT: a Proposal*

D. Deharbe, P. Fontaine, B. Woltzenlogel Paleo, *Quantifier Inference Rules for SMT Proofs*

Discussion: *Proofs for SMT*

Room 104

Room 103

Room 118

Room 141

Room 119