

**Types for Proofs and Programs**  
**19th TYPES Meeting**  
**April 22-26, 2013**  
**Toulouse, France**  
**TYPES 2013**



**Program**

## Satellite workshop «Proof, Computation, Complexity 2013 (PCC 2013)»

<b>09h00</b> <b>09h55</b>	registration <b>in entrance hall</b> of the IRIT - coffee break on arrival
<b>09h55</b> <b>10h00</b>	opening <b>in «salle des thèses»</b> of the IRIT, all PCC talks of the day take place in that room
<b>10h00</b> <b>12h00</b>	3 contributed talks ■ Hugo HERBELIN, Gyesik LEE, Keiko NAKATA. Computational interpretation for the big five systems of reverse mathematics ■ Guillaume BONFANTE. Rational Bitwise Equations from a recursive point of view ■ Isabel OITAVEM. Rethinking FPspace with pointers
<b>12h00</b> <b>14h00</b>	120 minutes lunch break ( <b>in restaurant L'Esplanade</b> ≈ 10 minutes walking distance on campus)
<b>14h00</b> <b>15h20</b>	2 contributed talks ■ Paola BRUSCOLI, Alessio GUGLIELMI, Tom GUNDERSEN, Michel PARIGOT. A Quasipolynomial Normalisation Procedure in Deep Inference ■ Nicolas GUENOT. On the computational interpretation of contraction in deep inference
<b>15h20</b> <b>16h00</b>	coffee break <b>in entrance hall</b> of the IRIT
<b>16h00</b> <b>17h20</b>	2 contributed talks ■ Martin STICHT. A Game-Theoretic Decision Procedure for the Constructive Description Logic cALC ■ James CHAPMAN, Tarmo UUSTALU, Niccolò VELTRI. Formalizing restriction categories

## Seminar series 2013 «Logics and analyses for verifying graph transformation» of the IRIT, in the auditorium Herbrand of the IRIT

<b>17h30</b> <b>18h45</b>	Lars BIRKEDAL. An introduction to separation logic, and the benefits of going higher-order (a tutorial)
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TYPES 2013 (main conference in MI V Guy Isaac)

09h00 09h55	registration for TYPES participants <b>in room ME001</b> - coffee break on arrival
09h55 10h00	opening of main TYPES conference <b>in the auditorium MI V Guy Isaac</b> , all TYPES talks of the week take place there
10h00 11h00	TYPES invited talk Steve AWODEY. Higher Inductive Types in Homotopy Type Theory
11h00 11h30	coffee break <b>in room ME001</b>
11h30 11h55	contributed talk TYPES Hugo HERBELIN. Some reflections about equality in type theory (tentative material for further research)
11h55 12h45	2 contributed TYPES talks <b>in MI V Guy Isaac</b> ■ Benedikt AHRENS, Krzysztof KAPULKIN, Michael SHULMAN. Univalent categories and the Rezk completion ■ Thorsten ALTENKIRCH. Weak omega groupoids and beyond
12h45 14h25	100 minutes lunch break (buffet <b>in the caf��teria</b> in the basement of building E)
14h25 16h05	4 contributed TYPES talks <b>in MI V Guy Isaac</b> ■ Egbert RIJKE, Bas SPITTERS. Sets in homotopy type theory ■ Hugo HERBELIN, Arnaud SPIWACK. The Rooster and the Syntactic Bracket ■ Danel AHMAN, Tarmo UUSTALU. Update monads: cointerpreting directed containers ■ Pierre-Marie P��DROT. A Dependent Delimited Continuation Monad
16h05 16h35	coffee break <b>in room ME001</b>
16h35 18h15	4 contributed TYPES talks <b>in MI V Guy Isaac</b> ■ Kaustuv CHAUDHURI, Jo��lle DESPEYROUX. A Hybrid Linear Logic for Constrained Transition Systems ■ Xavier ALLAMIGEON, St��phane GAUBERT, Victor MAGRON, Benjamin WERNER. Formal Non-linear Optimization via Templates and Sum-of-Squares ■ Daniel FRIDLENDER, Miguel PAGANO, Leonardo RODR��GUEZ. Mechanized semantics for an Algol-like language ■ Robert KREBBERS. Effective Types for C formalized in Coq

## Tuesday April 23 (Manufacture des Tabacs, Univ. Toulouse 1 Capitole)

### PCC 2013

11h55 12h00	change of room for PCC participants
12h00 12h45	contributed PCC talk <b>in lecture hall MD003</b> Reinhard KAHLE, Anton SETZER. The extended predicative Mahlo universe in explicit mathematics
12h45 14h25	100 minutes lunch break (buffet <b>in the caf�eteria</b> in the basement of building E)
14h25 16h05	2 contr. PCC talks <b>in MD003</b> ■ Susumu YAMASAKI. Algebraic Compositions of Action Structures for Function Terms ■ Ren� GAZZARI. Natural Calculation
16h05 16h35	coffee break <b>in room ME001</b>
16h35 18h15	2 contributed PCC talks <b>in MD003</b> ■ Danko ILIĆ, Keiko NAKATA. A Direct Constructive Proof of Open Induction on Cantor Space ■ Joseph BOUDOU, Bruno WOLTZENLOGEL PALEO. Compression of Propositional Resolution Proofs by Lowering Subproofs

## Wednesday April 24 (Manufacture des Tabacs, Univ. Toulouse 1 Capitole)

### TYPES 2013 (main conference in MI V Guy Isaac)

09h00 10h00	invited talk Ulrich KOHLENBACH. Types in Proof Mining
10h00 10h25	contributed talk Masahiko SATO, Randy POLLACK, Helmut SCHWICHTENBERG, Takafumi SAKURAI. Viewing Lambda-Terms through Maps
10h25 10h55	coffee break <b>in room ME001</b>

<p>10h55 12h35</p>	<p>4 contributed talks</p> <ul style="list-style-type: none"> <li>■ Federico ASCHIERI, Stefano BERARDI, Giovanni BIROLO. Strong Normalization for Intuitionistic Arithmetic with 1-Excluded Middle</li> <li>■ Richard DAPOIGNY, Patrick BARLATIER. Formalizing Subsumption Relations in Ontologies using Type Classes in Coq</li> <li>■ Zhaohui LUO, Fedor PART. Subtyping in Type Theory: Coercion Contexts and Local Coercions</li> <li>■ Christian RETORÉ. Type-theoretical natural language semantics: on the system F for meaning assembly</li> </ul>
<p>12h35 14h15</p>	<p>100 minutes lunch break (buffet <b>in the caf��teria</b> in the basement of building E)</p>
<p>14h15 15h55</p>	<p>4 contributed talks</p> <ul style="list-style-type: none"> <li>■ Andreas ABEL, Anton SETZER. Copatterns : Programming Infinite Structures by Observations</li> <li>■ Marc BEZEM, Thierry COQUAND, Keiko NAKATA. Are streamless sets Noetherian?</li> <li>■ Steffen VAN BAKEL, Maria GRAZIA VIGLIOTTI. Fully abstract semantics of lambda-mu with explicit substitution in the pi-calculus</li> <li>■ Alberto CIAFFAGLIONE, Ivan SCAGNETTO. Revisiting the bookkeeping technique in HOAS based encodings</li> </ul>
<p>15h55 16h25</p>	<p>coffee break <b>in room ME001</b></p>
<p>16h25 17h40</p>	<p>3 contributed talks</p> <ul style="list-style-type: none"> <li>■ Cyril COHEN, Maxime D��N��S, Anders M��RTBERG. Computable Refinements by Quotients and Parametricity</li> <li>■ Guillaume CLARET, Lourdes del Carmen GONZ��LEZ HUESCA, Yann R��GIS-GIANAS, Beta ZILIANI. Lightweight proof by reflection using a posteriori simulation of effectful computation</li> <li>■ Benjamin WERNER. A very generic implementation of data-types with binders in Coq</li> </ul>
<p>17h40 18h00</p>	<p>fresh air break</p>
<p>18h00 19h00</p>	<p>business meeting</p>

TYPES 2013 (main conference in MI V Guy Isaac)

09h00 10h00	invited talk Lars BIRKEDAL. Charge! a framework for higher-order separation logic in Coq.
10h00 10h25	contributed talk Ki Yung AHN, Tim SHEARD, Marcelo FIORE. Mendler-style Recursion Schemes for Mixed-Variant Datatypes
10h25 10h55	coffee break <b>in room ME001</b>
10h55 12h35	4 contributed talks <ul style="list-style-type: none"> <li>■ Anton SETZER. Unfolding Nested Patterns and Copatterns</li> <li>■ Maxime BEAUQUIER. Towards Infinite Terms in Twelf</li> <li>■ Matthieu SOZEAU. Universe Polymorphism and Inference in Coq</li> <li>■ Claudio SACERDOTI COEN, Dominic MULLIGAN. Polymorphic variants in dependent type theory</li> </ul>
12h35 14h15	100 minutes lunch break (buffet <b>in the caf�eteria</b> in the basement of building E)
14h15 14h30	gathering for guided visit in the building
14h30 16h00	guided visit of old town (if you are registered)
16h00 19h00	free time
19h00 20h00	first part of gala dinner: cocktail outside <b>Brasserie Flo</b> (if you are registered)
20h00	second part of gala dinner: dinner inside <b>Brasserie Flo</b> (if you are registered)

TYPES 2013 (main conference in MI V Guy Isaac)

<p><b>09h30</b> <b>10h45</b></p>	<p>3 contributed talks</p> <ul style="list-style-type: none"> <li>■ Petar MAKSIMOVIĆ. Probability Logics in Coq</li> <li>■ Aleksy SCHUBERT, Paweł URZYCZYN, Daria WALUKIEWICZ-CHRZĄSZCZ. Positive Logic Is 2-Exptime Hard</li> <li>■ Valentin BLOT. Realizability for Peano Arithmetic with Winning Conditions in HON Games</li> </ul>
<p><b>10h45</b> <b>11h15</b></p>	<p>coffee break <b>in room ME001</b></p>
<p><b>11h15</b> <b>12h30</b></p>	<p>3 contributed talks</p> <ul style="list-style-type: none"> <li>■ Stefano BERARDI. A learning-based interpretation for polymorphic lambda-calculus</li> <li>■ Peter LJUNGLÖF. Type-based Human-Computer Interaction</li> <li>■ Nicolas GUENOT. Nested Typing and Communication in the lambda-calculus</li> </ul>
<p><b>12h30</b> <b>14h15</b></p>	<p>100 minutes lunch break (buffet <b>in the caf�eteria</b> in the basement of building E)</p>

Those who want to attend the CSPM workshop have to leave before 13:45, thus after 75 minutes of lunch (count 10 minutes walk, 20 minutes subway, 10 minutes walk and orientation in the building).

Workshop CSPM «Computer Science, Philosophy, Mathematics» (IMT, Univ. Paul Sabatier: auditorium Schwartz)

<p><b>14h30</b> <b>16h00</b></p>	<p>Steve AWODEY. Structuralism, Invariance, and Univalence</p>
<p><b>16h00</b> <b>16h15</b></p>	<p>coffee break</p>
<p><b>16h15</b> <b>17h45</b></p>	<p>Ulrich KOHLENBACH. Proof Theory : From the Foundations of Mathematics to Applications in Core Mathematics</p>

