

Intuitionistic Modal Logic and Applications

IMLA 2011

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LMPS

July, 2011

A bit of history...

First IMLA Trento 1999

Second IMLA Copenhagen 2002

Third IMLA Chicago 2005

Fourth IMLA Pittsburgh 2008

Fifth IMLA Nancy 2011

How to best combine the proof-theoretic strengths of constructive logics with the model-theoretic strengths of modal logics?

What are the killer applications?

IMLA99 Trento, Italy

A Judgmental Reconstruction of Modal Logics, *Frank Pfenning*

The Russell-Prawitz Modality, *Peter Aczel*

Deep isomorphism of modal derivations and lambda-terms, *Sergei Artemov*

Extracting information from intermediate T-systems, *Mauro Ferrari,*

Camillo Fiorentini and Pierangelo Miglioli

Order-Theoretic, Geometric and Combinatorial Models of Intuitionistic S4

Proofs, *Jean Goubault-Larrecq*

A First Order Modal Logic and its Sheaf Models, *Barney Hilken and David*

Rydeheard

A constructive approach to state description semantics, *Ruurik Holm*

Logical Modalities and Multi-Stage Programming, *Zine El-Abidine*

Benaissa, Eugenio Moggi, Walid Taha, Tim Sheard

Primitive Recursion for Higher Order Abstract Syntax with Dependent

Types, *Joelle Despeyroux, Pierre Leleu*

Proof Search in Lax Logic, *Jacob Howe*

The webpage <http://floc99.itc.it/conferences/w5/program.htm> disappeared, got it from the wayback machine

IMLA 2002 Copenhagen, Denmark

Realizability and modality, *Dana Scott*

Propositions as [types], *Steve Awodey and Andrej Bauer*

A categorical outlook on relational modalities and simulations, *Claudio Hermida*

Towards a formal pragmatics: An intuitionistic theory of assertive and conjectural judgements with an extension of Gödel, McKinsey and Tarski's S4 translation, *Gianluigi Bellin*

A modal logic for observation-based knowledge representation, *Olivier Brunet*

Open truth and closed falsity, *Giovanni Sambin*

Topological semantics for intuitionistic modal logics, and spatial discretisation by A/D maps, *J. M. Davoren; V. Coultard; T. Moor; R. P. Goré and A. Nerode*

Modal run-time analysis revisited, *Maria Emilia Maietti and Eike Ritter*

webpage: <http://floc02.diku.dk/IMLA/program.html>

IMLA 2005, Chicago, IL, USA

Checking Properties of Pointer Programs, *David Walker, Princeton*

A Modal Calculus for Named Control Effects, *Aleksandar Nanevski, CMU*

A Computational Interpretation of Classical S4 Modal Logic, *Chun-chieh Shan, Harvard*

A Term Calculus for Dual Intuitionistic Logic, *Gianluigi Bellin, Verona and QMW, London*

Intuitionistic Modal Logic: observations from algebra and duality, *Yde Venema, Amsterdam*

Labeling Sequents: motivations and applications, *Patrick Girard, Stanford*

On the inferential role semantics of modal logic, *Charles Stewart, Dresden*

Gödel's Interpretation of Intuitionism, *William W. Tait, Chicago*

Constructive Description Logics: work in progress, *Valeria de Paiva, PARC*

webpage <http://www.cs.cmu.edu/~fp/imla05/>

IMLA 2008, Pittsburgh, PA, USA

Invited talk: *Frank Pfenning*

On Constructive Linear-Time Temporal Logic, *Kensuke Kojima and Atsushi Igarashi*

Constructive rationality implies backward induction for conscientious players, *Rene Vestergaard, Pierre Lescanne and Hiroakira Ono*

Reducing Provability to Knowledge in Multi-Agent Systems, *Simon Kramer*

From classical to intuitionistic hybrid logic, *Torben Brauner*

A Modal Sequent Calculus for Propositional Separation Logic, *Neelakantan Krishnaswami*

Calculi for an Intuitionistic Hybrid Modal Logic, *Didier Galmiche and Yakoub Salhi*

Two-sequent K and simple fibrations, *Kurt Ranalter*

Principal-Centric Reasoning in Constructive Authorization Logic, *Deepak Garg*

webpage <http://www.cs.bham.ac.uk/~vdp/IMLA08.html>

TODAY's Programme

Michael Mendler A Simply Typed Calculus for Semantic Knowledge Bases:

Curry-Howard for Constructive Modal Logics

Brian Logan Keeping Track of Reasons for Beliefs

Lutz Strassburger Nested sequent systems for intuitionistic and modal logics

Luiz Carlos Pereira On the truth and meaning of constructive modalities

Giuseppe Primiero A multi-modal type theory and its procedural semantics for safe distributed programming

Robert Simmons and Bernardo Toninho Constructive Provability Logic.

Newton M. Peron and Marcelo E. Coniglio A Generalization of Dugundji's Theorem.

Gianluigi Bellin and Kurt Ranalter Expectations: On pragmatic interpretations of classical logic in a bi-intuitionistic environment.

IMLA Publications

Modalities in Type Theory. Special Issue of *Mathematical Structures in Computer Science*, Vol. 11, No. 4, August 2001. Guest editors: M. Fairtlough, M. Mendler, E. Moggi.

Intuitionistic Modal Logic and Application (Special Issue) *Journal of Logic and Computation*, volume 14, number 4, August 2004. Guest Editors: Valeria de Paiva, Rajeev Gore' and Michael Mendler.

Special Issue on Intuitionistic Modal Logic and Applications, *Information and Computation*, To appear (final versions submitted to publishers Jan 2011) Guest editors: Valeria de Paiva and Brigitte Pientka.

Future Plans?...

Technical Report?...

Online bibliography (on PBWorks...) ?

Special Issue of Journal of Logic and Computation:
promised!

Open Call for Papers.

Timeline:

Call for Papers: October 2011?

Submission Deadline? 15 Jan 2012?

Suggestions?