

Program on Higher Structures in Geometry and Physics

Workshop on Homotopy Type Theory

February 10 - 14, 2016

Max Planck Institute for Mathematics
Bonn

Organizing Committee

Michael Batanin (Macquarie University), Christian Blohmann (MPIM Bonn)
Ralph Kaufmann (Purdue University), Martin Markl (Czech Academy of Sciences)



Lecture series by Vladimir Voevodsky on "Dependent Type Theory"

Abbreviated Abstract: Modern dependent type theories exist mostly in the form of computer programs. As such they are objects of the physical reality more than they are objects of the mathematical one. The discovery of the univalent models led to the addition of new features to the existing type theories as well as to the development of entirely new ones. Eventually, these new type theories will become the cores of proof assistants. It is clear that the only way to ensure that these new proof assistants are reliable is to have a system where a new proof assistant has to be formally certified using an already certified proof assistant against an already certified formal system. The strongest consistency standard available in pure mathematics is ZFC. This means that as a prerequisite for such a certification system, we need to have a mathematical theory of dependent type theories that can be formalized in ZFC. At the moment only fragments of this future theory exist. I will give an introduction to my vision of the theory by describing these fragments and pointing out the gaps.

Workshop co-ordinator: Richard Garner (Macquarie University)

Confirmed Participants

Ahrens, Benedikt (Institute for Advanced Study)
Awodey, Steve (Carnegie Mellon University)
Bauer, Andej (Fakulteta za matematiko in fiziko)
Berger, Clemens (Université de Nice)
Blanc, David (University of Haifa)
Bordg, Anthony (Czech Republic)
Breen, Lawrence (Université Paris Nord 13)
Brunerie, Guillaume (École normale supérieure Paris)
Buchholz, Ulrik (Carnegie Mellon University)
Cartier, Pierre (IHES)
Chapoton, Frederic (Université de Strasbourg)
Clive, Newsteat (Carnegie Mellon University)
Coquand, Thierry (University of Gothenburg)
Curien, Pierre-Louis (Université Paris Diderot)
David, Sabonis (TU Munich)
Dotsenko, Vladimir (Trinity College Cambridge)
Doubek, Martin (Charles University Prague)
Durov, Nicolai (V.A. Steklov Institute of Mathematics)
Escardo, Martin (School of Computer Science)
Finster, Eric (France)
Fiore, Marcelo (University of Cambridge)
Fresse, Benoit (Université de Lille 1)

Galvez Carrillo, Maria Imma (Terrassa)
Garner, Richard (Macquarie University)
Grayson, Dan (USA)
Haselwarter, Philipp (U.F.R. Mathématiques)
Hinich, Vladimir (University of Haifa)
Hofstra, Pieter Jan (University of Ottawa)
Huber, Simon (Chalmers University of Technology)
Jaun, Lukas (Institute of Computer Science)
Joyal, André (Université du Québec à Montréal)
Jurco, Branislav (Charles University)
Kapulkin, Chris (The University of Western Ontario)
Kassel, Christian (Université de Strasbourg et CNRS)
Kock, Joachim (Universitat Autònoma de Barcelona)
Le Grignou, Brice (Université de Nice)
Livernet, Muriel (Université Paris Diderot)
Lumsdaine, Peter (Stockholm University)
Makkai, Michael (McGill University)
Maltsiniotis, Georges (Université Paris Diderot)
Martin-Löf, Per (Stockholm University)
Moerdijk, Ieke (Utrecht University)
Neeman, Amnon (The Australian National University)
North, Paige (University of Cambridge)

Palmgren, Erik (Stockholm University)
Rijke, Egbert (Department of Philosophy)
Robayo Mesa, Jaime Andrés (Ph.D. Student)
Ronco, Maria Ofelia (Universidad de Talca)
Salvatore, Paolo (Università di Roma Tor Vergata)
Sattler, Christian (University of Leeds)
Schreiber, Urs (Czech Academy of Sciences)
Shin, Heayong (Department of Mathematics)
Sinha, Dev Parakash (University of Oregon)
Sojakova, Kristina (Carnegie Mellon University)
Spitters, Bas (Netherlands)
Streicher, Thomas (TU Darmstadt)
Tonks, Andrew (University of Leicester)
Trlifaj, Jan (Charles University)
Vallette, Bruno (Université Paris Nord 13)
van den Berg, Benno (University of Amsterdam)
Verchinine, Vladimir (Université Montpellier II)
Voevodsky, Vladimir (Institute for Advanced Study)
von Glehn, Tamara (University of Cambridge)
Weber, Mark (Macquarie University)

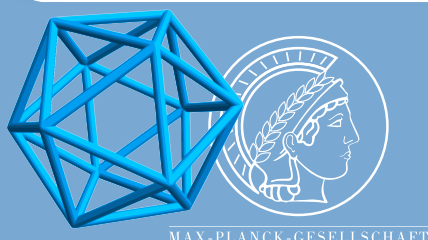
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Advisory Board

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