ZiF Zentrum für interdisziplinäre Forschung
Center for Interdisciplinary Research
Universität Bielefeld

ZiF WORKSHOP

FoMUS: Foundations of Mathematics: Univalent Foundations and Set Theory - What are Suitable Criteria for the Foundations of Mathematics?

Convenors: Lukas Kühne (Bonn, GER)
Deborah Kant (Berlin, GER)
Deniz Sarikaya (Hamburg, GER)
Balthasar Grabmayr (Berlin, GER)
Mira Viehstädt (Hamburg, GER)

18 – 23 July 2016

IN COOPERATION WITH:

MONDAY, JULY 18

1:00 - 2:00 pm	Welcome addresses by Michael Röckner (ZiF Managing Director) Opening
2:00 - 3:30 pm	**Vladimir Voevodsky** *Multiple Concepts of Equality in the New Foundations of Mathematics*
3:30 - 4:00 pm	Tea / coffee break
4:00 - 5:30 pm	**Marc Bezem** *"Elements of Mathematics" in the Digital Age*
5:30 - 7:00 pm	Parallel Workshop Session A) **Regula Krapf:** *Introduction to Forcing* B) **Ioanna Dimitriou:** *Formalising Set Theoretic Proofs with Isabelle/HOL in Isar*
7:00 pm	Light Dinner

TUESDAY, JULY 19

9:00 - 10:30 am	**Thorsten Altenkirch** *Naïve Type Theory*
10:30 - 11:00 am	Tea / coffee break
11:00 am - 12:30 pm	**Benedikt Ahrens** *Univalent Foundations and the Equivalence Principle*
12:30 - 2.00 pm	Lunch
2:00 - 3:30 pm	Parallel Workshop Session A) **Regula Krapf:** *Introduction to Forcing* B) **Ioanna Dimitriou:** *Formalising Set Theoretic Proofs with Isabelle/HOL in Isar*
3:30 - 4:00 pm	Tea / coffee break
4:00 - 5:30 pm	**Clemens Ballarin** *Structuring Mathematics in Higher-Order Logic*
5:30 - 7:00 pm	Parallel Workshop Session A) **Alexander C. Block:** *Modal Logic of Forcing* B) **Ulrik Buchholtz:** *Higher Inductive Types and Synthetic Homotopy Theory*
7:00 pm	Dinner

WEDNESDAY, JULY 20

9:00 - 10:30 am	Parallel Workshop Session A) **Clemens Ballarin:** *Proof Assistants (Isabelle) I* B) **Alexander C. Block:** *Modal Logic of Forcing*
10:30 - 11:00 am	Tea / coffee break
11:00 am - 12:30 pm	Parallel Workshop Session A) **Clemens Ballarin**: *Proof Assistants (Isabelle) II* B) **Ulrik Buchholtz**: *Higher Inductive Types and Synthetic Homotopy Theory*
12:30 - 2.00 pm	Lunch
2:00 - 3:30 pm	**Claudio Ternullo** *Multiversism and Naturalism*
3:30 - 4:00 pm	Tea / coffee break
4:00 - 5:30 pm	**Thomas Streicher** *Isomorphic Types are Equal!?*
5:30 - 7:00 pm	Plenum & Ad Hoc Meetings*
7:00 pm	Light Dinner

THURSDAY, JULY 21

9:00 - 10:00 am	**Michael Rathjen** *Relating Type and Set Theories*
10:00 - 11:00 am	**Andrew Pitts** *On Proofs of Equality as Paths*
11:00 - 11:30 am	Tea / coffee break
11:30 am - 12:30 pm	**Bas Spitters** *Sets in Homotopy Type Theory*
12:30 - 2:00 pm	Lunch
2:00 - 3:00 pm	**Mirna Džamonja** *title tba*
3:00 - 3:30 pm	Tea / coffee break
3:30 - 5:30 pm	**Panel Discussion**: *Mathematical Aspects*
5:30 - 7:00 pm	Plenum & Ad Hoc Meetings*
7:00	Conference Dinner

FRIDAY, JULY 22

9:00 - 10:00 am	**Ulrik Buchholtz** *Proof Theory of Homotopy Type Theories*
10:00 - 11:00 am	**Nathan Bowler** *title tba*
11:00 - 11:30 am	Tea / coffee break
11:30 am - 12:30 pm	**James Ladyman** *Does HoTT Provide a Foundation for Mathematics?*
12:30 - 2:00 pm	Lunch
2:00 - 3:00 pm	**Philip Welch** *Solving Problems by Reflection*
3:00 - 3:30 pm	Tea / coffee break
3:30 - 5:30 pm	**Panel Discussion**: *Philosophical Aspects*
5:30 - 5:45	Break
5:45 - 7:00 pm	Informal session: **Urs Schreiber** *The nLab*
7:00	Light Dinner

SATURDAY, JUL 23

9:00 - 10:00 am	**Benedikt Löwe** *Multiverse Truth Behaviour Patterns*
10:00 - 11:00 am	**Urs Schreiber** *Modern Physics Formalized in Modal Homotopy Type Theory*
11:00 - 11:30 am	Tea / coffee break
11:30 am - 12:30 pm	**Ioanna Dimitriou** (tbc) *Formalising a FOL Set Theory in Isabelle/HOL, in a Textbook Fashion*
12:30 - 1:30 pm	Lunch
1:30 - 2:30 pm	**Andrei Rodin** *Proofs and Objects in HoTT*
2:30 - 3:00 pm	Closing Session

***What are Ad Hoc Meetings?**

Ad hoc Meetings are a new form of conference activity. The idea is to provide a framework in which participants can meet in smaller groups and discuss research topics which spontaneously came up during previous presentations or discussions at the conference.
In a short plenum at the beginning of each Ad Hoc Meeting slot, participants can propose topics (with a short and precise description thereof) which will be collected by the organisors. In a quick vote the proposals with the most interested participants will be determined and subsequently assigned rooms in which these 'ad hoc groups' can discuss the respective topics.