Workshop
"Libraries of Digital Math"

July 29 - August 2, 2024

organized by
Kevin Buzzard, Jacques Carette, Valeria de Paiva, Michael Kohlhase, Josef Urban

Time measurement: CEST

- **Monday, July 29**

08:30 - 09:00	*Arrival and Self-Registration*
09:00 - 09:40	**Organizers of the Workshop** *Organizational Topics*
09:40 - 10:20	**Frédéric Blanqui** *Translating HOL-Light proofs to Coq*
10:20 - 10:50	*Coffee break*
10:50 - 11:30	**Fabian Huch** *Big Math Libraries in ITPs*
11:30 - 12:10	**Assia Mahboubi** *Trocq: proof transfer in type theory, beyond univalence and type equivalence*
12:10 - 13:30	*Lunch break*
13:30 - 14:30	**Who am I** *All participants present their research/workshop interests in 2 min*
14:30 - 15:20	**Plenary** *Distributions of workgroups and talks; be prepared to pitch your talks and your workgroup proposals*
15:20 - 16:00	**Mario Carneiro** *Metamath Zero: Export your Logic*
16:00 - 16:30	*Coffee break*
16:30 - 18:00	**Workgroup 2**
from 18:00 on	*Get-Together*

- **Tuesday, July 30**

09:00 - 09:40	**Luis Berlioz** *Text mining the arXiv with LLMs*
09:40 - 10:20	**Aarne Ranta** *Building grammar libraries for mathematics and avoiding manual work*
10:20 - 10:50	*Group Photo and Coffee break*
10:50 - 11:30	**Mauricio Ayala-Rincón** *Formalization of nominal equational reasoning in PVS - nominal unification*
11:30 - 12:10	**Makarius Wenzel** *Isabelle as System Platform for the Archive of Formal Proofs (AFP)*
12:10 - 14:00	*Lunch break*
14:00 - 16:00	**Workgroup 1** *A) Ranta: Hands-on work on GF resources for mathematical language. An introduction to GF can be included if needed. B) Macbeth: Study HOL Light sum-of-squares tactic and reimplement in other language(s)*
16:00 - 16:30	*Coffee break*
16:30 - 18:30	**Workgroup 2** *Carette: Structuring Libraries - pros and cons of various choices*

- **Wednesday, July 31**

09:00 - 09:40	**Ilka Agricola** *A view from the IMU Committee on Electronic Information and Communication*
09:40 - 10:20	**Freek Wiedijk** *From 100 to 1000+ theorems*
10:20 - 10:50	*Coffee break*
10:50 - 11:10	**Yannick Forster et al** *How libraries deal with maintenance, CI, PRs*
11:10 - 11:30	**Moritz Schubotz** *Formal mathematics in zbMATH Open*
11:30 - 11:40	**Florian Rabe** *Teaser for the workgroup on Hierarchies of Theories*
11:40 - 12:10	**Ilka Agricola** *CEIC Publication Discussion*
12:10 - 14:00	*Lunch break*

14:00 - 16:00	**Workgroup 1** *Commelin: How libraries deal with maintenance, build management (CI), change management (PRs)*
16:00 - 16:30	*Coffee break*
16:30 - 18:30	**Workgroup 2** *a) Rabe: Automated Transformation of Hierarchies of Theories in Large Libraries, b) Agricola: Publication Discussion*

- **Thursday, August 1**

09:40 - 10:20	**Florian Rabe** *Experiences from Exporting Proof Assistant Libraries*
10:20 - 10:50	*Coffee break*
10:50 - 11:30	**Yannick Forster** *The Coq library of undecidability proofs, talk with a focus how to use work around proof assistants for teaching and thesis projects*
11:30 - 12:10	**Thibault Gauthier (remote) tbc** *Automated Alignments*
12:10 - 14:00	*Lunch break*
14:00 - 16:00	**Workgroup 1** *Monticone: Getting started with blueprint-driven formalization projects in Lean*
16:00 - 16:30	*Coffee break*
16:30 - 18:30	**Workgroup 2** *Urban: Library search mechanisms*

- **Friday, Augut 2**

09:00 - 09:40	**Heather Macbeth** *Inequality reasoning in formalization*
09:40 - 10:20	**Sina Hazratpour** *HoTT in Lean4*
10:20 - 10:50	*Coffee break*
10:50 - 11:30	**Michael Kohlhase** *Flexiformal Math Libraries: Collecting/Organizing more than Def/Thm/Proof*
11:30 - 12:10	**Yannick Forster** *Library search mechanisms in Coq*
12:10 - 14:00	*Lunch break*

14:00 - 16:00	**Workgroup 1**
16:00 - 16:30	*Coffee break*
16:30 - 18:30	**Workgroup 2**