## Schedule for Oberwolfach workshop 2413 "Proof Complexity and Beyond"

| Time  | MONDAY MAR 25                        | TUESDAY MAR 26                    | WEDNESDAY MAR 27                | THURSDAY MAR 28                     | FRIDAY MAR 29                          | Time  |
|-------|--------------------------------------|-----------------------------------|---------------------------------|-------------------------------------|--|-------|
| 08:45 | Welcome                              |                                   |                                 |                                     |  | 08:45 |
| 09:00 | Robert Robere                        | Kilian Risse                      | Pravesh Kothari                 | Igor Carboni Oliveira               | Jakob Nordström                        | 09:00 |
| 09:15 | TFNP and proof complexity            | Clique is hard on average         | Kikuchi matrix method           | Meta-mathematics of                 | Certifying combinatorial solving using | 09:15 |
| 09:30 |                                      | for unary Sherali-Adams           |                                 | complexity theory                   | cutting planes with strengthening      | 09:30 |
| 09:45 |                                      |                                   |                                 |                                     |  | 09:45 |
| 10:00 |                                      |                                   |                                 |                                     |  | 10:00 |
| 10:15 |                                      |                                   |                                 |                                     |  | 10:15 |
| 10:30 | Noah Fleming                         | Jonas Conneryd                    | Madhur Tulsiani                 | Emil Jerabek                        | Neil Thapen                            | 10:30 |
| 10:45 | PPP not closed for Turing reductions | Colouring hard on average for PC  | Decoding codes via proofs       | Theory of exponential integer parts | Strength of the dominance rule         | 10:45 |
| 11:00 | Neil Thapen                          | Jacobo Toran                      | Grigoriy Blekherman             | Pavel Pudlak                        | Aaron Potechin                         | 11:00 |
| 11:15 | TFNP intersections & feasible disj.  | Pebble games and algebraic proofs | Graph homomorphisms & polys     | Quantified propositional calculus   | Nullstellensatz and coefficient size   | 11:15 |
| 11:30 | Pavel Hrubes                         | Johan Håstad                      | Nicola Galesi                   | Martin Grohe                        | Currently free slot                    | 11:30 |
| 11:45 | A variant of monotone calculus       | Small-depth Frege proofs for PHP  | Algebraic proof cplx of tensors | Compressing CFI graphs and WL LBs   | to be scheduled later                  | 11:45 |
| 12:00 | Iddo Tzameret                        | Dmitry Itsykson                   | Edward Hirsch                   | Shuo Pang                           | Currently free slot                    | 12:00 |
| 12:15 | Functional LBs in algebraic proofs   | Regular resolution over parities  | Tropical proof systems          | Supercritical trade-offs for WL     | to be scheduled later                  | 12:15 |
| 12:30 | LUNCH                                | LUNCH                             | LUNCH                           | LUNCH                               | LUNCH                                  | 12:30 |
| 12:45 |                                      |                                   |                                 |                                     |  | 12:45 |
| 13:00 |                                      |                                   |                                 |                                     |  | 13:00 |
| 13:15 |                                      |                                   |                                 |                                     |  | 13:15 |
| 13:30 |                                      |                                   |                                 |                                     | Currently free slot                    | 13:30 |
| 13:45 |                                      | LEGEND                            |                                 |                                     | to be scheduled later                  | 13:45 |
| 14:00 |                                      | Long talk (50-55 min)             |                                 |                                     | Currently free slot                    | 14:00 |
| 14:15 |                                      | Short talk (20-25 min)            |                                 |                                     | to be scheduled later                  | 14:15 |
| 14:30 |                                      | Other                             |                                 |                                     |  | 14:30 |
| 14:45 |                                      |                                   |                                 |                                     | WORKSHOP ENDS                          | 14:45 |
| 15:00 |                                      |                                   |                                 |                                     |  | 15:00 |
| 15:15 |                                      |                                   |                                 |                                     |  | 15:15 |
| 15:30 |                                      |                                   |                                 |                                     |  | 15:30 |
| 15:45 |                                      |                                   |                                 |                                     | 1                                      | 15:45 |
| 16:00 | Susanna de Rezende                   | Dmitry Sokolov                    |                                 | Olaf Beyersdorff                    |  | 16:00 |
| 16:15 | Proof complexity, communication      | Some applications of              |                                 | Proof complexity & QBF              |  | 16:15 |
| 16:30 | complexity, and lifting              | sunflowers                        |                                 | Abhimanyu Choudhury                 |  | 16:30 |
| 16:45 |                                      |                                   |                                 | Dependency schemes in CDCL QBF      |  | 16:45 |
| 17:00 |                                      |                                   |                                 |                                     |  | 17:00 |
| 17:15 |                                      |                                   |                                 |                                     | 1                                      | 17:15 |
| 17:30 | Theodoros Papamakarios               | Mika Göös                         |                                 | Kaspar Kasche                       |  | 17:30 |
| 17:45 | Automating bounded-depth Frege       | Hardness condensation             |                                 | Polynomial calculus in QBF          |  | 17:45 |
| 18:00 | Presentation                         | Anastasiia Sofronova              |                                 | Ilario Bonacina                     |  | 18:00 |
| 18:15 | of participants                      | Top-down LBs for depth-4 circuits |                                 | Proof systems for MaxSAT            |  | 18:15 |
| 18:30 | DINNER                               | DINNER                            | DINNER                          | DINNER                              |  | 18:30 |
| 18:45 |                                      |                                   |                                 |                                     |  | 18:45 |
| 19:00 |                                      |                                   |                                 |                                     |  | 19:00 |