Scientific report - Short visit to Helsinki November 9-14, 2010

Philipp Schlicht

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The purpose of the visit was collaboration with Daisuke Ikegami on the joint paper "Continuous reducibility on the real line".

We have extended the results to show that the embedding of P(N)/fin into the Borel subsets of the real line quasiordered by preimages under continuous reducibility preserves all gaps, answering a question of Brendle. However, for the original embedding the proof is quite complicated in the case of a $(1, \lambda)$-gap. We thus constructed a different embedding with the property that all Borel sets considered are completely rigid under continous reduction, i.e. any reduction can be replaced by a homeomorphism and in this case the preservation of gaps is easier. We have adapted the proofs to this construction.

The proofs can probably be extended to continuous reducibility of equivalence relations on the real line with exactly two equivalence classes and of closed equivalence relations.

We are planning to submit the paper in a few weeks.

During my visit I also had time to discuss new results on equivalence relations on κ^κ with Tapani Hyttinen and Vadim Kulikov, including a counterexample to definable uniformization after adding Cohen subsets of κ.