

COST Action IC1205 on Computational Social Choice: STSM Report**Applicant:** Peter Biro**Home institution:** Hungarian Academy of Sciences**Home country:** Hungary**Host:** Haris Aziz**Host institution:** Data61/NICTA, Sydney**Host country:** Australia**Dates:** 15/01/2016 to 30/01/2015

During my research visit I had very fruitful discussions with Haris Aziz and his colleagues, Nick Mattei, Serge Gaspers and Toby Walsh in particular. I also had chance to meet with Paolo Ferrari, who is responsible for organising the Australian kidney exchange program. With Haris we mostly discussed research questions on many-to-many matchings, which was our initial plan, namely the complexity of deciding the existence of a core-solution and checking the core property under different preference domain restrictions. We had some hardness results, and identified some clear open questions for future research. This can be considered as a follow-up work of our previous paper Optimal Reallocation under Additive and Ordinal Preferences, just accepted to AAMAS, a collaboration that we started when we were both hosted by Jerome Lang in Paris in May 2015. In the meantime, I also learned about some recent results of Haris and their colleagues, in particular two interns presented their works on the lung exchange problem and on the exchange stable matching problem, and I have also found Haris' new paper on Top Trading Cycles for Housing Markets with Fractional Endowments very interesting. I also explained some research problems on matching with uncertain preferences that we are working on with Baharak Rastegari, and I received some very useful comments. Therefore this line of research can also lead to a collaboration in the near future.

On 21 January I gave a talk at the Data61/NICTA Decision Sciences Seminar on Computational aspects of matching problems under preferences.

I thank the COST Action for the opportunity to make this visit.