The main purpose of my visit to Vienna was to continue to carry out my own work while simultaneously investigating mutual interests with others at the institute.

As far as my own work is concerned, I was able to finally write out a draft of the proof of the precise graph-theoretic dichotomy at the base of the Kechris-Louveau characterization of hyperfinite equivalence relations. To my surprise, the underlying σ-ideal is slightly different than what I originally expected, but it has a very simple characterization in terms of the σ-ideals associated with my proofs of Silver's characterization of equivalence relations with only countably many equivalence classes and Hjorth's characterization of smooth treeable equivalence relations, thereby tying together these three theorems. I hope to write out the full proof of the Kechris-Louveau theorem from this graph-theoretic dichotomy in the near future, and of course the ESF-INFTY project will be acknowledged in the resulting paper.

While in Vienna, I also put the finishing touches on a joint paper with Caicedo, Clemens, and Conley concerning definability of intersecting families and a new Dilworth-style perfect set theorem. This paper has now been submitted to *Fundamenta Mathematicae*, and the ESF-INFTY project has been acknowledged.

In addition, Conley and I continued recent work on the existence of matchings and measurable colorings in locally countable definable graphs. We showed that acyclic locally finite analytic graphs on Polish spaces admit Baire measurable 3-colorings (answering a question of Kechris), and that acyclic locally countable graphs on Polish spaces admit 3-colorings which are measurable with respect to a number of natural notions of measurability arising from descriptive set-theoretic dichotomy theorems (e.g., Silver measurability). We will of course acknowledge the ESF-INFTY project in the resulting paper.

As far as joint work is concerned, Friedman, Motto Ros, Schlicht, Törnquist, and I discussed the possibility of consistently extending Silver's theorem to spaces of uncountable exponent. In analogy with work of mine in the case of countable exponent, a natural strategy is to first establish the analog of the Kechris-Solecki-Todorcevic dichotomy for analytic graphs of countable Borel chromatic number, and then to apply elementary Baire category arguments. One advantage of this approach is that if successful, it should simultaneously allow us to import much of modern descriptive set theory to spaces of uncountable exponent. We noticed that a natural weakening of $\diamondsuit$ is sufficient to ensure that the relevant Baire category techniques go through. It is therefore natural to try to establish the aforementioned analog of the Kechris-Solecki-Todorcevic theorem in models of $\diamondsuit$ which satisfy the higher exponent analog of the perfect set theorem. Unfortunately, we have thus far been unable to do this. We plan to continue working on the project, however, and will of course acknowledge the ESF-INFTY project in any resulting papers.