Scientific Report- Anda-Ramona Tănasie

Introduction

I am a Master student at the University of Vienna, currently writing my master thesis under the supervision of Prof. Sy-David Friedman, about various consistency results involving the invariants $\mathfrak{b}, \mathfrak{s}$ and $\mathfrak{a}$. I received this ESF-short visit grant to be able to attend the "Young Set Theory Workshop", held in Santuario di Oropa between the 10-th and the 14-th of June 2013. This Workshop aims towards bringing young set theorists together and giving them the opportunity to learn from each other, as well as from much more experienced senior researchers.

Methods

During my stay in Santuario di Oropa, I attended the 4 **tutorials** offered. Although not on cardinal invariants, these tutorials made me more familiar with other areas of set theory and raised in me the interest to study these topics in more details.

The **research talks** and the **poster sessions** were also very informative and covered a variety of interesting topics. Among the research talks, I found T. Bice's talk especially interesting. He talked about C^*-algebras, concentrating on a natural analog of $P(\omega)/Fin$, studied several structures in terms of this algebra and even defined the corresponding cardinal invariants. I was not very familiar with C^*-algebras and seeing such a natural analogy to $P(\omega)/Fin$ definitely raised my interest.

The **discussion sessions** were especially productive, we met in smaller groups and discussed a lot of interesting problems.

During the organized discussion sessions, G. Laguzzi and W. Wohofsky

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presented variants of strong measure zero sets, their correspondence to different forcing notions $\mathbb{P}$ and to the $\mathbb{P}$-shiftable sets. After a short introduction in the subject, they presented a set of open questions they encourage people to think about.

Results

One of the topics I discussed with Giorgio Laguzzi and Wolfgang Wohofsky, was the fact that the ground model infinite subsets of omega form a splitting family in extensions by a Suslin ccc forcing notion. This is a well known result due to S. Shelah and H. Judah dated in 1988 that we tried to understand better, in the hope to argue, that this result can be generalized to finite support iterations of uncountable length of a Suslin ccc forcing. Evidently the generalization is not direct, since a long finite support iteration of Suslin ccc forcing notions is not Suslin (the size can't be grater than $\mathfrak{c}$ of the ground model). Studying the proof of S. Shelah and H. Judah's theorem, we selected which properties of Suslin ccc forcing that actually need to still hold for the finite support iteration for the proof to generalize.

Conlcusion

Young Set Theory Workshop was a very good experience for me, I attended a lot of mathematical discussions, I learned a lot of new things and I met people I can keep in touch with and continue discussing mathematics.