

**MY STAY AS A LEIBNIZ FELLOW AT MFO  
OCTOBER 1, 2009 - JANUARY 31, 2010**

SİNEM ÇELİK ONARAN

I was an Oberwolfach Leibniz Fellow at MFO during the period October 1, 2009 - January 31, 2010 with a research stay at University of Cologne during November 1 - November 31, 2009.

I enjoyed my stay a lot at MFO. I spent most of my time at the library where one can find majority of the books and any article they search for. For me, library of MFO is one of the best in the world.

During weekly workshops, I have met many mathematicians. I had lovely conversations and as a mathematician in the early stages of my career, I had very helpful advices from many mathematicians. I had an exciting and memorable experience, too. I had a chance to meet and to have dinner with two great mathematicians, Hirzebruch and Remmert.

During my stay at MFO, I worked on a project on knots in Lens spaces. I managed to classify Legendrian torus knots sitting on the Heegaard torus in the universally tight contact structures on Lens spaces. For this purpose, I first classified all topological torus knots lying on the Heegaard torus in Lens spaces. Then, I classified Legendrian representatives of these knots in universally tight contact structures on Lens spaces. I started to write this project during my stay at University of Cologne.

I stayed one month at University of Cologne. I was hosted by Prof. Hasjörg Geiges. I am grateful to MFO giving me this opportunity to work with Prof. Geiges. He was very kind and friendly to me. He is full of knowledge. I learned a lot from him. He helped me to broaden my knowledge in symplectic and contact geometry. With Prof. Geiges, we started a research project on distinguishing Legendrian knots using contact surgery. First, we tried this idea for knots in the 3-sphere. Then, during his visit to MFO in the first week of January 2010, we tried this idea in general 3-manifolds. Later on, our hard work paid off and we get interesting results.

**Publications written during my stay**

- Legendrian Knots in Lens Spaces, preprint,
- Non-simple Legendrian Knots via Contact Surgery, joint with Hasjörg Geiges and Bülent Tosun, in preparation.

Lastly, I am grateful to Prof. Gert-Martin Greuel for his attention and his encouragement. I would like to thank to Administration and Guest Office staff for their invaluable help. In particular, I would like to thank to Susanne Riester for helping me to solve my visa problem.

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH, OBERWOLFACH-WALKE GERMANY AND UNIVERSITY OF WATERLOO, ONTARIO CANADA  
*E-mail address:* [sonaran@math.uwaterloo.ca](mailto:sonaran@math.uwaterloo.ca)