

様式 20-2 帰国報告書 (ITP Research Report)

Research Report of JSPS-ITP

(The international sending-elevating project for young mathematicians  
based on singularity, topology and mathematical analysis: Hokudai model)

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Research Report:

I visited ICMC-USP (Instituto de Ciencias Matematicas e de Computacao, University of Sao Paulo) in Sao Carlos, Brazil. I took part in the workshop “10<sup>th</sup> International Workshop on Real and Complex Singularities” with Takayuki Nagai and Tomonori Fukunaga. We explained our studies at the poster sessions.

My study is the differential geometry on de Sitter space as the application of the singularity theory. I talked about the geometrical meaning of the singularities to the participants. Some of them were interested in my study and I argued them about the singularity theory.

During the work shop, I found out some interesting studies and keywords;

(1) Juan J Nuno Ballesteros (Universidad de Valencia) and Juan Antonio Moya Perez (Universidad de Valencia) studies the finitely determined singularities of surfaces and the Gauss words. They construct the doodles of surface germs and characterized their topological types by using the word theory.

(2) Some speakers pictured the asymptotic lines on the surfaces. The asymptotic line helps us to characterize the shapes on the surfaces. Can it give a new viewpoint in de Sitter space and Anti de Sitter space?

(3) Peter Giblin (University of Liverpool) talked about the affine equidistance and center symmetry sets. He showed us some examples of the center symmetry sets. I would like to argue it in de Sitter space. Is it possible and can I find a new result?

After the work shop, Masatomo Takahashi (Muroran Institute of Technology), Declan Davis (University of Liverpool) and Maria Ruas (ICMC-USP) gave us seminars. They asked us some questions and argued about our studies. It was the first time for me to explain my study to foreign researchers at the seminar, and it was a good experience to arrange my talks in English.

This trip gave me the chance to talk with many researchers. They were very kind and taught me not only their studies but also their customs. I talked with some young researchers at the dinner party. They will take part in the next workshop in Valencia, so I'll argue about our studies with them next time.

I'll complete my study in Anti de Sitter space and consider the above study and keywords (1)-(3) to have a talk at the next workshop in Valencia.

Finally, thank you for the ITP support.