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**Report about the visit to the Department of Mathematics, University of Bergen  
August-September 2022**

I have visited the Department of Mathematics, University of Bergen for the first time where I visited and worked with Professor Gunnar Fløystad, hopefully not the last. I was TMS-Guest Professor during the stay with a partial grant from the Trond Mohn Foundation through the project Pure Mathematics in Norway.

During the stay with Professor Fløystad, we started joint work, resulting in a very interesting article: "Polarizations of artinian monomial ideals gives simplicial balls".

Also, as part of the duties during the stay I has giving three lectures:

1. Nice behaviour of powers of monomial ideals strong persistence and stability;
2. Square-free monomial ideals and the geometric notions of shellability, vertex decomposability and sequentially Cohen-Macaulay
3. A brief history of Mathematics in the Universities of Iran, especially in the University of Kurdistan.

The main purpose of this visit both to develop my knowledge and my research and also to do joint work with Professor Fløystad. This will be very valuable for my future career.

During my stay, through cooperation with Professor Fløystad, I have reached a better understanding of the relation between Algebraic topology and Combinatorial Commutative Algebra, in particular seeing interesting applications.

In the end, I would like to thankful Professor Fløystad for many interesting and important discussions and also the Department of Mathematics, University of Bergen and the Trond Mohn Foundation for the financial support. I am also most grateful to the members of Department of Mathematics, University of Bergen for interesting discussions and the friendly atmosphere.



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