

Report

Research work during first year of INdAM fellowship

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Università degli Studi di Genova

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1. Courses attended and grades obtained

1. Methods of Convex Optimization

- Period: February 2018.
- Lecturers: E. De Vito, S. Villa, and S. Salzo.
- Place: Università degli Studi di Genova.

2. Homological and combinatorial aspects of Commutative Algebra

- Period: February–May 2018.
- Lecturers: A. Conca and M. Varbaro.
- Place: Università degli Studi di Genova.

3. Integral closure of ideals, normal Hilbert polynomials and local cohomology of Rees algebras

- Period: April–May 2018.
- Lecturer: J. K. Verma.
- Place: Università degli Studi di Genova.

4. Determinantal ideals and varieties

- Period: September–November 2018.
- Lecturer: A. Simis.
- Place: Politecnico Torino.

2. Seminar attended

I attended at least 20 talks in the Algebra & Geometry seminar, Università degli Studi di Genova, during 2017/11–2018/11. Titles and dates may be found online at <https://commalge.tumblr.com/>.

3. Seminar talks given

I gave the seminar talk “Prony’s reconstruction method for multivariate exponential sums” at Politecnico Torino on October 26, 2018.

4. Conferences attended

1. 2018/03/22–24: Politecnico Torino, “Ideals of Powers and Powers of Ideals”.
2. 2018/06/03–08: MPI Leipzig, “Macaulay2 Workshop 2018”.
3. 2018/09/27–28: Università degli Studi di Torino, “A two-day journey in computational algebra and algebraic geometry dedicated to Margherita Roggero”.

5. Visiting periods to other universities

1. 2017/12: Osnabrück University. During this visit an ongoing project on “Prony structures” [2] was started.
2. 2018/05/07–11: Osnabrück University (funded by MIUR-DAAD Joint Mobility Program, M. Juhnke-Kubitzke and M. Varbaro). Significant progress on Prony structures [2] was achieved during this visit.

6. Papers published

- [1] S. Kunis, H. M. Möller, T. Peter, and U. von der Ohe. Prony’s method under an almost sharp multivariate Ingham inequality. *J. Fourier Anal. Appl.*, 24(5):1306–1318, October 2018.

7. Preprints

- [2] S. Kunis, T. Römer, and U. von der Ohe. Prony structures and applications. In preparation.