

01/11/2023

InterCity - seminar

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Neuchâtel - Bern - Konstanz - Lugano

Time	Speaker	Talk
14:00-15:00	Patricia Klein (Texas A&M University)	Geometric vertex decomposition and liaison
	<i>Room B77 (two floors under the entrance level)</i>	<p>Geometric vertex decomposition and liaison are two frameworks that have been used to produce similar results about similar families of algebraic varieties. In this talk, we will describe an explicit connection between these approaches. Specifically, we will describe how each geometrically vertex decomposable ideal is linked by a sequence of elementary G-biliaisons of height 1 to an ideal of indeterminates and, conversely, how every G-biliaison of a certain type gives rise to a geometric vertex decomposition.</p> <p>As a consequence, we can immediately conclude that several well-known families of ideals are glicci, including Schubert determinantal ideals, defining ideals of varieties of complexes, and defining ideals of graded lower bound cluster algebras. This connection also gives us a framework for implementing with relative ease Gorla, Migliore, and Nagel's strategy of using liaison to establish Gröbner bases.</p> <p>Time permitting, we will describe briefly, as an application of this work, a proof of a conjecture of Hamaker, Pechenik, and Weigandt on diagonal Gröbner bases of certain Schubert determinantal ideals.</p> <p>This talk is based on joint work with Jenna Rajchgot.</p>
15:00-15:30	<i>break and informal discussion (Room 228)</i>	
15:30-16:30	Leonid Monin (EPFL)	Duality algebras and topology of algebraic varieties.
	<i>Room B77 (two floors under the entrance level)</i>	<p>A classical construction associates a Poincaré duality algebra to a homogeneous polynomial on a vector space. This construction was used to give a presentation for cohomology rings of complete smooth toric varieties by Khovanskii and Pukhlikov and of some spherical varieties (including full flag varieties) by Kaveh. More recently, motivated by this construction, Brändén and Huh defined Lorenzian polynomials</p> <p>In my talk, I will recall the above results and will give two recent generalizations of the construction of duality algebras. The first one replaces the homogeneous polynomial by weighted homogeneous polynomial (and more general functions). In contrast to the classical construction, this allows us to construct Poincaré duality algebras which are not necessarily generated in degree 1. The second extension is the discrete analogue of the classical construction, which associates an algebra with Gorenstein duality to a polynomial on a lattice (free abelian group). As a corollary, this provides a presentation of K-ring of smooth complete toric varieties as well as full flag varieties.</p>
16:30-17:30	<i>break and informal discussion (Room 228)</i>	

For further informations please refer to the seminar's webpage

<https://mathsites.unibe.ch/intercity-seminar/>

or contact the organisers:

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