Mathematics, Statistics, and Computer Science   **@ UIC**

Commutative Algebra Seminar

GKZ-systems and mixed Hodge modules

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Abstract: I will define GKZ-systems, and talk a little about their properties from the algebraic, analytic, and combinatorial point of view. Then I will discuss a theorem of Gelfand et al, and a sharpening by Mathias Schulze and myself, on the question which GKZ-systems arise as (D-module-)direct image of a natural D-module on a torus. In such cases, the GKZ-system can inherit a mixed Hodge module structure. I will then explain work with Thomas Reichelt that computes the weight filtration of this MHM structure on a class of GKZ-systems that comes up naturally in mirror symmetry. This complements work of Reichelt and Christian Sevenheck who computed the Hodge filtration, and supersedes computations of Batyrev who determined the weight filtration in a generic point. Very few of such explicitly computed structures seem to be known.

Monday, November 19 at 11:00 AM in 427 SEO