**On the transcendental part of K3 surfaces associated with 3D Fano polytopes**

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Up to affine transformations over **Z** there are 18 different 3D Fano polytopes. The set of vertices of such a polytope is a subset **V** of **Z**^3 which can be used as exponents for a Laurent polynomial. The surface in **P**^3 defined by the homogenization of such a Laurent polynomial is a quartic **K3** surface. Varying the coefficients of the Laurent polynomial yields a family of **K3** surfaces. The aim of the talk is to demonstrate how the Gelfand-Kapranov-Zelevinsky hypergeometric system associated with **V** and results on Mirror Symmetry for lattice polarized **K3** surfaces lead to simple elegant expressions for the transcendental periods as functions of the coefficients of the Laurent polynomial.