

LIB60BER

**Some results and open problems on
surface singularities**

András Némethi, Alfréd Rényi Institute of Mathematics

ABSTRACT

Recently some amazing constructions, connections and results were found and developed about the invariants of normal complex surface singularities. Here I just mention the construction of splice-quotient singularities by Neumann and Wahl, and the computation of some of their invariants (by Neumann, Wahl, Okuma and myself), the connection described by the Campillo, Delgado and Guzein-Zade formula (targeting by the identification of two series the topological description of the Poincaré series associated with the multivariable divisorial filtration), or the connection around the ‘Casson Invariant Conjecture’ (of Neumann-Wahl) or its generalization, the ‘Seiberg-Witten Invariant Conjecture’ (Némethi-Nicolaescu), which lead to a deep interplay with Heegaard-Floer homology of the link, having the outcome the construction of the ‘lattice homology of the link’. We list some key results and some guiding open problems.