

Abel maps and h^1 stratification of line bundles for elliptic singularities

János Nagy

In the classical case, when considering compact smooth curves, the Abel maps $\text{Symm}^d(C) \rightarrow \text{Jac}(C)$ and its properties yield a nice tool to investigate the h^1 stratification of line bundles on C . In the case of normal surface singularities, there are analogous Abel maps $\text{ECa}^{l'}(Z) \rightarrow \text{Pic}^{l'}(Z)$ for each cycle Z and Chern class l' , which have got similar properties as in the classical setup. The images of these Abel maps in general are interesting varieties, whose invariants like its dimension, class, degree, singular locus change if we vary the analytic structure of the normal surface singularity keeping the topological type, so these varieties give a bunch of analytic invariants of the surface singularity. In the case of elliptic graphs, these image varieties always turn out to be Zariski open subsets of affine subspaces. This fact gives a way to describe the h^1 stratification of line bundles on elliptic singularities and to prove other results about them.