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Meromorphic line bundles

In usual complex algebraic geometry, the Picard group of holomorphic line bundles on a complex algebraic variety X is given by $H^1\left(\mathcal{O}_X^\times\right)$. In this talk, we will discuss about a meromorphic modification of this sheaf for which the first cohomology will represent the group of meromorphic line bundles on X with singularities along a divisor D in X. We will then give examples of these meromorphic line bundles and discuss how ideas from mixed Hodge theory are used to study these geometric objects. Using an example involving the complement of an elliptic curve in $\mathbb{P}^2$, we will discuss how these meromorphic line bundles relate to open Calabi-Yau mirror symmetry. Time permitting, we will discuss the possible relationship of these meromorphic line bundles to regulators in arithmetic gometry.