The cl-core of an ideal

Abstract

We expand the notion of the core of an ideal to cl-core for Nakayama closures cl. Let $(R,\mathfrak{m})$ be a Noetherian local ring of characteristic $p>0$ and infinite residue field. In general $\operatorname{core}(I)\subset *\text{-}\operatorname{core}(I)$, where $*$ denotes the tight closure operation and I is an R-ideal. We show that the $*\text{-}\operatorname{core}(I)=\operatorname{core}(I)$ in a local Cohen–Macaulay normal domain with perfect infinite residue field, if the analytic spread, ℓ, is equal to the $*$-spread and I is for example $\mathfrak{m}$-primary. We also generalize the notion of general reductions to general $*$-reductions. This is joint work with Janet Vassilev.