

LOCAL PICARD GROUP OF STANLEY-REISNER RINGS

DAVIDE ALBERELLI

ABSTRACT. Binoids (aka pointed monoids) are interesting combinatorial objects that allow us to enlarge the category of monoids and describe combinatorial properties of a class of algebraic and geometric objects broader than the classical monoid algebras and toric varieties. It is possible to define classical geometric objects in terms of modern combinatorial ones, like spectra of binoids, modules over a binoid and sheaves that allow us to do a lot of modern algebraic geometry. We are able to give formulas for the computation of the cohomology of the sheaf of invertible elements restricted to the punctured spectrum in the particular case of a simplicial binoid. This result gives us then a formula for the Local Picard group (and higher local cohomology groups) of Stanley-Reisner rings, in terms of reduced simplicial cohomology of the underlying simplicial complex.

DHD STUDENT, UNIVERSITY OF OSNABRÜCK, OSNABRÜCK, GERMANY

E-mail address: dalberelli@uos.de