

Abstract

Let $A \rightarrow A'$ be a regular morphism of Noetherian rings, any A -morphism $v : B \rightarrow A'$ with B an A -algebra of finite type, factors through a smooth A -algebra C , that is v is a composite A -morphism $B \rightarrow C \rightarrow A'$. The A -algebra C is called a General Neron Desingularization.

In this thesis we give a uniform General Neron Desingularization for one dimensional local rings with respect to morphisms which coincide modulo a high power of the maximal ideal. The result has interesting applications in the case of Cohen-Macaulay rings.

Moreover, as our another contribution, we give an easy proof of the General Neron Desingularization in the frame of regular morphisms between Artinian local rings and Noetherian local rings of dimension one. We also give algorithms to construct the Néron Desingularization in different cases.