

Formal schemes

1 Definitions and examples

Definition 1. Let X be a noetherian scheme, and let $Z \subseteq X$ be a closed subset defined by a sheaf of ideals \mathcal{I} . The *formal completion* of X along Z is the ringed space $(Z, \mathcal{O}_X^\wedge)$, where $\mathcal{O}_X^\wedge = \varprojlim \mathcal{O}_X/\mathcal{I}^n$.

Yang: To be added.

Definition 2. Let X be a noetherian scheme, and let $Z \subseteq X$ be a closed subset. The *formal completion* of X along Z is the ringed space $(Z, \mathcal{O}_X^\wedge)$, where $\mathcal{O}_X^\wedge = \varprojlim \mathcal{O}_X/\mathcal{I}^n$ with \mathcal{I} being the sheaf of ideals defining Z . A *formal scheme* is a ringed space that is locally isomorphic to such a formal completion.

2 Theorem on formal functions

Theorem 3.

Appendix