

## Noncommutative deformation theory and Phase spaces

Arvid Sigveland (Univ. College of Southeast Norway)

**Abstract:** I will define noncommutative algebraic varieties by noncommutative deformation theory. This is basically done by replacing the local rings by the prorepresenting hull of the deformation functor, and prove that this is a stack on the Jacobson topology. We will need a generalized Burnside's theorem and a Serre theorem. Dynamics is introduced to noncommutative algebraic geometry by introducing the Phase space functor  $\text{Ph}(A)$  for an associative  $k$ -algebra  $A$ .