Abstract

In this thesis the global structure of three classes of algebraic triangulated categories is investigated by describing their thick, localizing and smashing subcategories and by analyzing the Smashing Conjecture. We show that the Smashing Conjecture for the stable module category of a self-injective artin algebra A is equivalent to the statement that a class of model categories associated with A is finitely generated. Smashing localizations of the derived category of a differential graded algebra are realized by morphisms of dg algebras. We use this theory to define a localization of a dg algebra with graded-commutative cohomology at a prime ideal of the cohomology ring. For a hereditary abelian category $\mathcal{A}$ we classify the thick subcategories and the localizing subcategories of the bounded and unbounded derived category of $\mathcal{A}$, respectively. As an application we prove that the Smashing Conjecture holds for the derived category of a hereditary artin algebra of finite representation type.