On cohomology and support varieties for Lie superalgebras.

In this paper we discuss finite generation of the relative cohomology rings for Lie superalgebras, we formulate a definition for detecting subalgebras, also discuss realizability of support varieties. As an application we compute the relative cohomology ring of the Lie superalgebra $\mathfrak{S}(n)$ relative to the graded zero component $\mathfrak{S}(n)_0$ and show that this ring is finitely generated. We also compute support varieties of all simple modules in the category of finite dimensional $\mathfrak{S}(n)$-modules which are completely reducible over $\mathfrak{S}(n)_0$. (Received September 04, 2010)