

Abstract

Let $f \in \mathbb{C}[X_1, \dots, X_n]$ be the homogeneous polynomial and $M(f)$ be the corresponding Milnor algebra which is the quotient of polynomial ring by jacobian ideal. This algebra $M(f)$ is a graded \mathbb{C} -algebra and its dimension is the Milnor number denoted as $\mu(f)$ when f has an isolated singularity at the origin. Let $B(f)$ be the Brieskorn module which is the quotient of the polynomial ring by some specific \mathbb{C} -vector space. The ring of polynomials $\mathbb{C}[t]$ acts on $B(f)$ in the following way $t^k[p] = [f^k.p]$. It is known that $B(f)$ is a free $\mathbb{C}[t]$ module of rank $\mu(f)$ when f has an isolated singularity at the origin. The torsion of Brieskorn module $B(f)$ is known only for two variables. The goal of my research is to find ways that allow us to study the torsion part of $B(f)$ for more than two variables, using the Milnor algebra.