

Second Workshop on Algebra and its Applications
August 31–September 01, 2012, University of Mohaghegh Ardabili

The Aluffi Algebra of a Singular Hypersurface

*Abbas Nasrollah Nejad*¹

P. Aluffi to describe characteristic cycle in intersection theory introduced an intermediate graded algebra between the symmetric and the Rees algebra of an ideal in a commutative Noetherian ring. These algebras investigated by A. Nasrollah Nejad and A. Simis. who named them Aluffi algebras. A pair of ideals $J \subset I$ of a commutative ring R satisfies linearity condition if the symmetric algebra is isomorphic with the Aluffi algebra of I/J . In this talk, we give some necessary and sufficient condition for linearity condition of a singular projective hypersurface. We are able to show that the singular locus of the generic member of a family of quartic plane curves with isolated singularity satisfies linearity condition. We prove that some family of quintic and sextic singular plane curves, the fixing singularity type, satisfies linearity condition. This work based on joint work with Rashid Zaare Nahandi.

References

- [1] P. Aluffi, Shadows of blow-up algebras, *Tohoku Math. J.* 56 (2004), 593-619.
- [2] W. Fulton, *Intersection Theory*, Springer-Verlag, Berlin, 1984.
- [3] A. Nasrollah Nejad, The Aluffi algebra of an ideal, PhD Thesis, Universidade Federal de Pernambuco, Brazil, 2010.
- [4] A. Nasrollah Nejad and R. Zaare Nahandi, Aluffi Torsion-free ideals, *J. Algebra*, 346 (2011) 284-298.
- [5] A. Nasrollah Nejad and A. Simis, The Aluffi algebra, *Journal of Singularities*, 3 (2011) 20-47.

¹Institute for Advanced Studies in Basic Sciences(IASBS) P. O. Box 45195-1159 Zanjan 45137-66731 Iran, abbasnm@iasbs.ac.ir