ROSE–TERAO–YUZVINSKY THEOREM FOR REDUCED FORMS

Aron Simis

Universidade Federal de Pernambuco

S. Yuzvinsky, and L. Rose jointly with H. Terao, have shown that the homological dimension of the gradient ideal J of the defining polynomial F of a generic hyperplane arrangement is maximum possible. In this work we provide another proof of this result, perhaps simpler, based on some elmentary matrix theory and combinatorial bits. Our result comes along with the explicit minimal graded free resolution of J. As a supplementary angle, we state a version of the above result in the case of a product of general forms of arbitrary degrees (in particular, transverse ones, as previously visited by L. Busé, A. Dimca, H. Schenck and G. Sticlaru). This is joint work with R. Burity, Z. Ramos and S. Tohaneanu.

In Special Session 13 on Influences of Combinatorics and Topology in Commutative Algebra at the Mathematical Congress of the Americas 2025.

MCA 2025 internal code: SS13-T12