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Discriminant of symmetric homogeneous polynomials

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The discriminant of a homogeneous polynomial is a fundamental tool in computer algebra and computational algebraic geometry. Although the discriminant of the generic homogeneous polynomial of a given degree is irreducible, for a particular class of polynomials it can be decomposed and this decomposition is always deeply connected to the geometric properties of this class of polynomials. In this talk, we will give a decomposition formula for the discriminant of a homogeneous symmetric polynomial. We will emphasize that this decomposition is universal (i.e. valid over any coefficient ring) as a consequence of the use of a correct and universal definition of the discriminant. Finally, we will (briefly) explain that this decomposition formula holds for a more general projection operator: the resultant of an equivariant polynomial system with respect to the symmetric group.
