

COMMUTATIVE ALGEBRA UP TO SYMMETRY

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In various contexts, one encounters sequences of ideals or modules over polynomial rings with a rich algebraic structure, indicated, for example, by invariance of the modules under the action of a symmetric group. It is natural to expect that the properties of related symmetric modules eventually become predictable even when the number of variables increases as one moves along the sequence. We discuss a framework for studying all but finitely many objects in such a sequence simultaneously. It has been used to establish asymptotic results for invariants of the objects such as the Hilbert function and multiplicity as well as graded Betti numbers and Castelnuovo-Mumford regularity. However, the boundaries for these stabilization results are not clear, and there are many open questions.