

## **Equations and syzygies via representation theory and combinatorics**

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In this talk I will discuss a number of examples of varieties with an action of the general linear group, from the point of view of studying their defining ideals, or more generally their minimal free resolutions. I will describe a general approach based on the use of Schur-Weyl duality in order to translate questions about GL-modules into the more combinatorial setting of the representation theory of symmetric groups, and will indicate some results and conjectures.