

Simple Specht Modules and Signed Young Modules.

Susanne Danz
University Eichstätt

Abstract: Specht modules as well as (signed) Young modules are well known to be of central importance for the representation theory of the symmetric groups. By work of D. Hemmer, every simple Specht module of a finite symmetric group over a field of odd characteristic is a signed Young module. While Specht modules are parametrized by partitions, indecomposable signed Young modules are parametrized by pairs of partitions. In this talk we shall briefly introduce Specht modules and signed Young modules, and recall some of their most important properties. We shall then establish the signed Young module labels of simple Specht modules. As consequences we shall, in particular, obtain representation-theoretic and homological invariants such as Green vertices, Green correspondents, cohomological varieties, and complexities of simple Specht modules of symmetric groups over fields of positive characteristics.

This is joint work with Kay Jin Lim (NTU Singapore).