CHARACTERS OF TILTING MODULES FOR ALGEBRAIC GROUPS

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Let G be a reductive algebraic group over an algebraically closed field. When the ground field has characteristic 0, the representation theory of G was essentially understood early in the 20th century, but when the ground field has characteristic $p > 0$, a number of fundamental questions remain open today. This lecture series will focus on recent developments in geometric methods that have led to a character formula for tilting modules of algebraic groups. A tentative outline for the three lectures is as follows:

(1) Background on tilting modules and related combinatorics
(2) The p-canonical basis and the Riche–Williamson conjecture
(3) Koszul duality and the tilting character formula

The main results are joint work with S. Makisumi, S. Riche, and G. Williamson.