

Meeting: 1001, Evanston, Illinois, SS 19A, Special Session on Algebraic Representations and Deformations

1001-22-272 **Jeb F. Willenbring*** (jw@uwm.edu), University of Wisconsin-Milwaukee, Department of Mathematical Sciences, P. O. Box 0413, Milwaukee, WI 53201. *Algebras related to branching rules*. Preliminary report.

This talk is a brief exposition of a joint research project with Eng-Chye Tan and Roger Howe concerning the systematic investigation of branching rules for the ten families of classical symmetric pairs. Using the theory of dual pairs, one can obtain explicit formulas for branching multiplicities within a certain stability range. Each of these formulas involves certain combinations of the Littlewood-Richardson coefficients. Moreover, this point of view allows one to describe certain graded algebras that encode the branching multiplicities as coefficients of their Hilbert series. We refer to these algebras as *branching algebras*. Our approach incorporates the phenomenon that branching for one symmetric pair is often closely related to the branching rules for an entirely different symmetric pair. Explicit bases for these algebras give rise to a new description of branching multiplicities. This description explains some of the combinatorial rules related to the branching problem. (Received August 29, 2004)