

## Abstract

Schur duality was discovered around the beginning of the 20th century and serves as a fundamental bridge between representation theory of general linear groups/algebras and symmetric groups. The duality and its quantum version have pervasive applications in representation theory, such as the resolution of the Kazhdan-Lusztig problem of superalgebra  $gl_{\{m|n\}}$ . Its geometric realization was only given recently by Beilinson, Lusztig, McPherson and Grojnowski. The geometric approach leads to a construction of canonical basis of the quantized version of  $gl_n$ . In this talk, I shall present this duality, its parallel generalizations to classical type and the ramifications of positivity of canonical bases, quiver varieties and symmetric pairs. This talk is partly based on my joint works with H. Bao, Z. Fan, J. Kujawa and W. Wang.