

© 2017 Heldermann Verlag
Journal of Lie Theory 27 (2017) 251–270

S. M. Garge

Dept. of Mathematics, Indian Inst. of Technology, Powai – Mumbai 400 076, India
shripad@math.iitb.ac.in

A. Nebhani

Dept. of Mathematics, Indian Inst. of Technology, Powai – Mumbai 400 076, India
anuradha.nebhani@gmail.com

Schur-Weyl Duality for Special Orthogonal Groups

Classical Schur-Weyl duality is between the group algebras of the general linear group, $GL_m(\mathbb{C})$, and the symmetric group, S_r ; both acting on the r th tensor power of the space $\mathbb{C}^m$. To get an analogue of this duality for orthogonal groups, Brauer described the so-called Brauer algebra which surjects onto the commutant of the group algebra of the orthogonal group. He also proved a Schur-Weyl duality for orthogonal groups over $\mathbb{C}$ which was later extended by Doty and Hu to all infinite fields of characteristic not two. In this paper, we prove the analogous duality for the special orthogonal groups over any infinite field of characteristic not two.

Keywords: Schur-Weyl duality, Brauer algebra, orthogonal groups.

MSC: 20G05