Journal of Lie Theory 17 (2007) 063–072

S. Krýsl
Mathematical Institute, Faculty of Mathematics and Physics, Charles University, Sokolovská 83, 186 73 Praha 8 - Karlín, Czech Republic
krysl@karlin.mff.cuni.cz

Decomposition of a Tensor Product of a Higher Symplectic Spinor Module and the Defining Representation of $\mathfrak{sp}(2n,\mathbb{C})$

Let $L(\lambda)$ be the irreducible highest weight $\mathfrak{sp}(2n,\mathbb{C})$-module with a highest weight λ, such that $L(\lambda)$ is an infinite dimensional module with bounded multiplicities, and let $F(\varpi_1)$ be the defining representation of $\mathfrak{sp}(2n,\mathbb{C})$. In this article, the tensor product $L(\lambda)\otimes F(\varpi_1)$ is explicitly decomposed into irreducible summands. This decomposition may be used in order to define some invariant first order differential operators for metaplectic structures.

Keywords: Symplectic spinors, harmonic spinors, Kostant's spinors, tensor products, decomposition of tensor products, modules with bounded multiplicities, Kac-Wakimoto formula.

MSC: 17B10; 17B81, 22E47