

THE BANACH-LIE ALGEBRA OF MULTIPLICATION OPERATORS ON A JBW*-TRIPLE

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Abstract

The Banach-Lie algebra $\ell(A)$ of multiplication operators on the JB*-triple A is introduced and it is shown that the hermitian part $\ell(A)_h$ of $\ell(A)$ is a unital GM-space the base of the dual cone in the dual GL-space $(\ell(A)_h)^*$ of which is affine isomorphic and weak*-homeomorphic to the state space of $\ell(A)$. In the case in which A is a JBW*-triple, it is shown that tripotents u and v in A are orthogonal if and only if the corresponding multiplication operators in the unital GM-space $\ell(A)_h$ satisfy

$$0 \leq D(u, u) + D(v, v) \leq id_A,$$

and that u is a pre-associate of v if and only if

$$D(u, u) \leq D(v, v).$$