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E. N. Reyes

Department of Mathematics, Southeastern Louisiana University, Hammond, Louisiana, U.S.A.
ereyes@selu.edu

***L*-Iwasawa Decomposition of the Generalized Lorentz Group**

Let $n \geq 2$. Let $O(1, n)$ be the generalized Lorentz Lie group, and let $\mathfrak{so}(1, n)$ be its Lie algebra. Let $L = \text{diag}(1, -1, I_{n-1})$ be a diagonal matrix. We state a sufficient condition that if satisfied by $G \in O(1, n)$ then there exists $t \in \mathbb{R}$, $k \in O(1, n)$, $V_1, Y \in \mathfrak{so}(1, n)$ such that $LkL^{-1} = k$, $V_1 \neq 0$, $LV_1L^{-1} = -V_1$, $[V_1, Y] = Y$, and $G = ke^{tV_1}e^Y$.

Keywords: Involution, Iwasawa decomposition, Lorentz group.

MSC: 15A23, 22E15.