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Branching Laws of Parabolic Verma Modules for Non-symmetric Polar Pairs

We give branching formulas from $\mathfrak{so}(7, \mathbb{C})$ to \mathfrak{g}_2 for parabolic Verma modules attached to \mathfrak{g}_2 -compatible parabolic subalgebras of $\mathfrak{so}(7, \mathbb{C})$, and branching formulas from \mathfrak{g}_2 to $\mathfrak{sl}(3, \mathbb{C})$ for parabolic Verma modules attached to $\mathfrak{sl}(3, \mathbb{C})$ -compatible parabolic subalgebras of \mathfrak{g}_2 respectively, under some assumptions on the parameters of parabolic Verma modules.

Keywords: Branching law, parabolic Verma module, polar pair, Lie algebra.

MSC: 17B10