

COVARIANTS IN THE EXTERIOR ALGEBRA OF A SIMPLE LIE ALGEBRA

ABSTRACT. For a simple complex Lie algebra $\mathfrak{g}$ we study the space of invariants $A = (\bigwedge \mathfrak{g}^* \otimes \mathfrak{g}^*)^{\mathfrak{g}}$, (which describes the isotypic component of type $\mathfrak{g}$ in $\bigwedge \mathfrak{g}^*$) as a module over the algebra of invariants $(\bigwedge \mathfrak{g}^*)^{\mathfrak{g}}$. As main result we prove that A is a free module, of rank twice the rank of $\mathfrak{g}$, over the exterior algebra generated by all primitive invariants in $(\bigwedge \mathfrak{g}^*)^{\mathfrak{g}}$, with the exception of the one of highest degree. Joint with P. Papi and C. Procesi.

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