Nathaniel F Bushek* (bushek@unc.edu), 10 Mt Bolus Rd, Chapel Hill, NC 27514. Hitchin’s conjecture for simply-laced Lie algebras implies that for any simple Lie algebra.

Let $\mathfrak{g}$ be any simple Lie algebra over $\mathbb{C}$. Recall there exists a principal TDS embedding of $\mathfrak{sl}_2$ into $\mathfrak{g}$ passing through a principal nilpotent of $\mathfrak{g}$. $\wedge(\mathfrak{g}^*)^\theta$ is generated by primitive elements $\omega_1, \ldots, \omega_\ell$, where $\ell$ is the rank of $\mathfrak{g}$. N. Hitchin conjectured that for any primitive element $\omega \in \wedge^d(\mathfrak{g}^*)^\theta$, there exists an irreducible $\mathfrak{sl}_2$-submodule $V_\omega$ of dimension $d$ such that $\omega$ is non-zero on $\wedge^d(V_\omega)$. The main motivation for Hitchin behind this conjecture lies in its connection with the study of polyvector fields on the moduli space $M_G(\Sigma)$ of semistable principal $G$-bundles on a smooth projective curve $\Sigma$ of any genus $g > 2$. We prove that the validity of this conjecture for simple simply-laced Lie algebras implies its validity for any simple Lie algebra. Let $G$ be a connected, simply-connected simple simply-laced algebraic group and $K$ the fixed subgroup of a diagram automorphism of $G$. We show that the restriction map of representation rings, $R(G) \to R(K)$, is surjective. Our proof of the reduction of Hitchin’s conjecture depends on this surjectivity. (Received September 18, 2013)