Section 03: Algebraic and Analytic Geometry	Poster number 287

Group action on instanton bundles

Laura Costa[*], Universitat de Barcelona.
Giorgio Ottaviani, Università di Firenze.

ABSTRACT

It is well-known that the natural action of SL(V) on $P^3 = P(V)$ induces an action of SL(V) on the moduli space $MI_{P^3}(0,k)$ of k-instanton bundles on P^3. Our goal is to study this action and to characterize the symmetry group $Sym(E)$ of a k-instanton bundle.

Indeed, given E a k-instanton bundle on P^3 we denote by $Z_k(E)$ the set of lines l on P^3 such that $E_{|l} \cong O_l(-k) \oplus O_l(k)$ and we prove:

Theorem A There exists a $SL(2)$-invariant morphism

$$\phi : MI^s_{P^3}(0,k) \longrightarrow P^{2k}$$

which is finite of degree equal to $\frac{(2k!)}{k!(k+1)!}$, being $MI^s_{P^3}(0,k)$ the moduli space of special k-instanton bundles.

Theorem B Let E be a k-instanton bundle on P^3 such that $Z_k(E) \neq \emptyset$. If $\mathbb{C}^* \subset Sym(E)$, then E is special.

Moreover we obtain a complete classification of $Sym(E)$ for any 3-instanton.

Keywords: *group action, instanton bundles*

Mathematics Subject Classification: *14*

Contact Address: `costa@mat.ub.es`