



CLASSIFICATION OF MONADS AND MODULI COMPONENTS OF STABLE RANK 2 BUNDLES WITH ODD DETERMINANT AND $c_2 = 10$

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Abstract: In this paper, we provide a complete classification of the positive minimal monads whose cohomology is a stable rank 2 bundle on \mathbb{P}^3 with Chern classes $c_1 = -1$, $c_2 = 10$. We prove the existence of two new components of the moduli space $\mathcal{B}(-1, 10)$ of stable rank 2 bundles with the given Chern classes. We also show that Hartshorne’s conditions on a sequence \mathcal{X} of 10 integers are sufficient and necessary for the existence of a stable rank 2 bundle with odd determinant and spectrum \mathcal{X} . Furthermore, we prove that the sequence of integers $\{-2^{n-1}, -1, 0, 1^{n-1}\}$ for $n \geq 4$ is realized as the spectrum of a stable rank 2 bundle \mathcal{E} of odd determinant by computing the minimal generators of its Rao module.

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Key words: stable bundles, moduli space, monads, spectrum.