**Hirschowitz, A.**

**Rank techniques and jump stratifications.** (English) Zbl 0682.14009

Vector bundles on algebraic varieties, Pap. Colloq., Bombay 1984, Stud. Math., Tata Inst. Fundam. Res. 11, 159-205 (1987).

[For the entire collection see Zbl 0653.00006.]

Let $u : E \to F$ be a morphism between two locally free sheaves on a smooth variety X. Then one can give a stratification of X according to the ranks of u. In this article, the author gives a survey on some tools and techniques in studying such stratification. At each point $x \in X$, he introduces the rank-Kodaira-Spencer map as the natural map from the tangent space of X at x to Hom(Ker u(x),cok u(x)). This gives a very nice tool in studying the maximal ranks question. In particular, the author gives a simpler proof for the existence of stable rank 2 vector bundles on $\mathbb{P}^3$ with natural cohomology. He also discusses the generalization of the well-known Petri map of the theory of special divisors on curves to higher rank bundles.

Reviewer: L.Ein

**MSC:**

14F05 Sheaves, derived categories of sheaves, etc. (MSC2010)
14C99 Cycles and subschemes
57N80 Stratifications in topological manifolds



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