Simple vector bundles on $\mathbb{P}^n$ and representatios of the Kronecker quiver

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Abstract

In this work, we show how to construct simple vector bundles on $\mathbb{P}^n$ with rank n and any homological dimension between 1 and $n-1$. Taking the sheafification of minimal free resolutions of certain algebras, we can also prove, using representations of the Kronecker quiver, that the vector bundles in the short exact sequences associated with these resolutions are simple.