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Positive elliptic and toric fibrations

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Abstract

We discuss the notion of positivity for isotrivial elliptic and toric fibrations. The notion of positivity in such fiber bundles is in many ways similar to positivity for line bundles and vector bundles.

Isotrivial toric fibrations can be defined as manifolds with free, proper, holomorphic action of a compact complex torus T . We show any irreducible complex subvariety of a positive toric fibration is T -invariant or lies in an orbit of T -action.

When $\dim T = 1$ (the fibration is elliptic), positivity puts strong constraints on geometry of stable bundles and coherent sheaves.