

Singular integral functors and Fourier-Mukai partners

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Abstract

We review derived categories and integral functors and their applications in algebraic geometry and mathematical physics. We then study the geometrical properties shared by the so-called Fourier-Mukai partners", that is, varieties whose associated derived categories of quasi-coherent sheaves are equivalent through a Fourier-Mukai functor. One of the main results is that if one variety is either smooth, Gorenstein or Cohen-Macaulay, any FM partner is respectively smooth, Gorenstein or Cohen-Macaulay as well

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