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manifolds after elliptic curves) [49].

2 Notations and conventions

Throughout we work over the base field $\mathbb{C}$. The bounded de
coherent sheaves on a variety X is denoted by $\mathcal{D}^b(X)$. Simila
derived category of finitely generated modules over an algebra
$\mathcal{D}^b(A)$. The shift functor in the derived category is denoted by
between triangulated categories are additive and exact (i.e. th
shift and preserve distinguished triangles).

A sheaf is a coherent $\mathcal{O}_X$-module and a point in X is always a
structure sheaf of a point x will be denoted by $\mathcal{O}_x$. The cano
smooth projective variety is denoted by K_X and the canonica
by ω_X.

3 Basics on Fourier-Mukai transforr

Let X and Y be connected smooth projective varieties. We
equivalences of the derived categories $\Phi : \mathcal{D}^b(Y) \longrightarrow \mathcal{D}^b(X)$.
and Y are also called *Fourier-Mukai partners* and the equiv
a *Fourier-Mukai transform*. In this section we will discuss

elliptic

19 Treffer

Seite	Text
	ter **elliptic** curves) [49].
	true for **elliptic** curves
	ly **elliptic** curves admit
	12 5) hyper**elliptic** surfa
	nerly **elliptic** surfaces

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Here are some examples to illustrate the syntax extensions and the meanings of the fields. Here are some examples that illustrate basic queries and a few extensions:

Anywhere diff*ism **Author** Edward-Witten **Anywhere** "linear map" **Author** Smith-J* **Title/ID** math.NT/9811068

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Doppel

Suchen

Introduction
Instantons and Branes
Complex Vector Cross Product
Symplectic Geometry on Knot Sp
Isotropic Knot Spaces of CY mar
Concluding Remarks

26

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A closed Kähler manifold of complex dimension n with $(n-1)$-fold $\mathbb{C}$-VCP ϕ is a CY n-fold.

An instanton in the Calabi-Yau n-fold is a special Lagrangian submanifold with phase θ since it is calibrated by $\mathrm{Re}\left(e^{i\theta}\phi\right)$. As in the previous proposition, an N-brane in the Calabi-Yau n-fold is a complex hypersurface, and a D-brane is a special Lagrangian submanifold with phase $\theta - \pi/2$, because it is calibrated by $\mathrm{Re}\left(e^{i(\theta-\pi/2)}\phi\right) = \mathrm{Im}\left(e^{i\theta}\phi\right)$.

Instantons and branes in hyperkähler manifold : 1-fold $\mathbb{C}$-VCP

A closed Kähler manifold of complex dimension $2n$ with a Kähler form ω_I and a 1-fold $\mathbb{C}$-VCP ϕ is a hyperkähler manifold. Denote $\phi =: \omega_J - \sqrt{-1}\omega_K$ and J , I and K as the complex structure corresponding to Kähler structures ω_J, ω_I and ω_K , respectively. And more, by putting $e^{i\theta}\phi$ in place of ϕ, one can observe $\mathrm{Re}\, e^{i\theta}\phi$ is another Kähler structure with a complex structure $J_\theta =: \cos\theta I + \sin\theta K$.

Now, an instanton in a hyperkähler manifold is a J_θ-holomorphic curve since it is calibrated by $\mathrm{Re}\, e^{i\theta}\phi$, namely preserved by J_θ. An N-brane in a hyperkähler manifold is a real $2n$-dimensional submanifold where ϕ vanishes, and as in the previous proposition, it is equivalently a J-complex Lagrangian which is a complex submanifold preserved by a complex structure J with complex dimension n. A D-brane is a real $2n$-dimensional submanifold where ω and $\mathrm{Re}\left(e^{i\theta}\phi\right)$ vanish. One can show that a D-brane is preserved by $J_{\theta+\pi/2}$ the almost complex structure corresponding to $-\mathrm{Im}\left(e^{i\theta}\phi\right)$, i.e. $e^{i\theta}\phi = \omega_{J_\theta} - \sqrt{-1}\omega_{J_{\theta+\pi/2}}$. So a D-brane is equivalently, a $J_{\theta+\pi/2}$-complex Lagrangian.

The above classification of instantons, N-branes and D-branes in manifolds with $\mathbb{C}$-VCP is summarized in the table in page 4.

4 Symplectic Geometry on Knot Spaces

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