Universal covering space of the Hilbert scheme of 
$n$ points of Enriques surface

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Abstract

We work over $\mathbb{C}$. The Hilbert scheme of $n$ points of Enriques surface has a Calabi-Yau manifold as the universal covering. We prove that every small deformations of the Calabi-Yau manifold is induced by that of the Hilbert scheme of $n$ points of Enriques surface, and count the number of isomorphism classes of the Hilbert schemes of $n$ points of Enriques surfaces which has $X$ as the universal covering space when we fix one for $n \geq 3$.

**Theorem 0.1.** Let $E$ be an Enriques surface, $E^{[n]}$ the Hilbert scheme of $n$ points of $E$, and $X$ the universal covering space of $E^{[n]}$. Then all small deformations of $X$ is induced by that of $E^{[n]}$.

**Theorem 0.2.** Let $E$ be an Enriques surface, $E^{[n]}$ the Hilbert scheme of $n$ points of $E$, $X$ the universal covering space of $E^{[n]}$, and $n \geq 3$. When we fix $X$, if $E$ is generic, then there is just one isomorphism class of the Hilbert schemes of $n$ points of Enriques surfaces such that they have it as the universal covering space.

References


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