

The minimal genus problem in rational surfaces

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There are three key ingredients in the study of minimal genus problem for rational surfaces $CP^2 \# n \overline{CP^2}$: the generalized adjunction formula, the action of orthogonal group of Lorentz space and the geometric construction. We prove the uniqueness of the standard form of a 2-dimensional homology class under the action of the subgroup of Lorentz orthogonal group that is realized by diffeomorphisms of $CP^2 \# n \overline{CP^2}$. Using geometric construction, we determine the minimal genera of some classes.

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