Quantized states of vortex in a $\mathbb{C}P^2$ Skyrme-Faddeev type model

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The Skyrme–Faddeev model is extensively studied for various low energy phenomena of QCD. It is well known that an extension of the Skyrme–Faddeev model on the target space $\mathbb{C}P^N$ possesses vortex solutions. Within the regime of standard collective coordinate quantization scheme, we compute the quantized state of the planar soliton of the model. Finally, we obtain the quantum soliton by extremizing the effective Hamiltonian. In this conference, we will report on the method of construction, the physical interpretation of quantum numbers and quantum statistics of the quantum soliton.