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An SU(6) Axion Model

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A high-quality axion is suggested to arise from the non-minimal unification model with the SU(6) group, due to its enhanced global symmetry. The physical axion in the model satisfies the Peccei-Quinn quality condition without fine-tuning, and can be searched for in the upcoming IAXO experiment. We also find the SU(6) model can naturally avoid the potential cosmological constraints of the conventional axion models, and realize the type-I seesaw mechanism and the type-II two-Higgs-doublet model. Some future efforts in the non-minimal unification models will be briefly discussed.

Primary author: 陈, 宁 (Nankai University)

Presenter: 陈, 宁 (Nankai University)

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