

Abstract Submitted
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Search for Efimov trimers in ultracold atomic mixtures in the presence of spin-orbit coupling SU-JU WANG, Department of Physics and Astronomy, Purdue University, HUILI HAN, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, JESUS PEREZ-RIOS, CHRIS GREENE, Department of Physics and Astronomy, Purdue University — Realization of synthetic gauge fields in ultracold atomic systems has attracted much attention in both few-body and many-body physics. Especially, there are extensive works on the two-body aspects of spin-orbit coupled quantum gases, which have already shown intriguing new features due to the change in the energy dispersion relation. However, there are few studies on the three-body physics in the presence of spin-orbit coupling. In this work, we apply the hyperspherical coordinate approach in the adiabatic approximation to solve the three-body system in zero total angular momentum subspace, where two of them are spin-orbit coupled, and the third one of a different species is not. Examination of the computed hyperspherical potential curves should provide the information needed to explore the possible existence of universal three-body bound states.

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