The 23rd International Conference on Few-Body Problems in Physics (FB23)



Contribution ID: 89

Type: 2.Parallel session talk

Heteronuclear Efimov universality with positive intraspecies scattering length

Tuesday, 24 September 2024 17:00 (30 minutes)

We theoretically investigate the heteronuclear Efimov universality in three-body systems, specifically 87Rb87Rb40K and 133Cs133Cs6Li, which exhibit repulsive intraspecies interactions. Our study focuses on the three-body recombination (TBR) rates with J=0 symmetry on the positive side of the interspecies scattering length. We utilize the R-matrix propagation method within a hyperspherical coordinate framework, employing the Lennard-Jones potential to model atomic interactions. Our findings reveal one Efimov recombination minimum for the RbRbK system and two for the CsCsLi system. These Efimov features, in conjunction with experimental observations, provide an opportunity to test the universality of Efimov states. Additionally, our study highlights the impact of finite-range effects and non-resonant intraspecies scattering lengths in heteronuclear mixtures, offering valuable insights into the universality of three-body parameters in systems with positive intraspecies scattering lengths.

Primary author: HAN, Huili (中国科学院精密测量科学与技术创新研究院)

Presenter: HAN, Huili (中国科学院精密测量科学与技术创新研究院)

Session Classification: Parallel 7: Interdisciplinary aspects of few-body physics and techniques

Track Classification: Interdisciplinary aspects of few-body physics and techniques