



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  $87\text{Rb}87\text{Rb}40\text{K}$  and  $133\text{Cs}133\text{Cs}6\text{Li}$ , 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  $\text{RbRbK}$  system and two for the  $\text{CsCsLi}$  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