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Borromean states in a one-dimensional three-body system

We explore the Borromean states of a one-dimensional quantum three-body system composed of two identical heavy particles and a different particle of smaller mass. There is no heavy-heavy interaction potential and no bound state supported by the heavy-light one. The three-body spectrum and corresponding wave-functions are calculated numerically within the Faddeev approach. In addition, we have investigated the properties of this Borromean state as well as the region of the system parameters where the state occurs.

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