
The p-wave contacts

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Abstract

In a degenerate Fermi gas near a p-wave Feshbach resonance, we observe the two “p-wave contacts,” a generalization of the contact function well known for s-wave interactions. The p-wave contacts, C_v and CR , are thermodynamic conjugates of the scattering volume v and effective range R , but are also expected to describe the asymptotic momentum distribution, two-body correlation function, and correction to the ideal-gas virial in a trap. Using rf spectroscopy, we measure the field dependence of the both contacts near the a dipole-split p-wave resonance in 40K, and study the dynamical response of C_v to a sudden increase in v .

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