

Abstract Submitted  
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**Exchange Frequencies in Helium-4 Crystals with Defects**

BURKHARD MILITZER, Carnegie Institution of Washington — The torsional oscillator experiments by Kim and Chan indicate the presence of a superfluid flow in solid helium-4 [Science 305 (2004) 1941], which cannot be explained with the properties of a perfect h.c.p. lattice [Ceperley, Bernu, PRL 93 (2004) 155303]. Using path integral Monte Carlo simulations, we study different types of defects and stacking faults in the crystal by analyzing the frequency of ring-exchanges along the defect lines. This focus lies on identifying a mechanism that could explain the observed 1% superfluid fraction.

Burkhard Militzer  
Carnegie Institution of Washington

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