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Exploration of Vacancies in Solid 4**He** BRYAN CLARK, DAVID CEPERLEY, UIUC Physics Dept. — Experiments by Kim and Chan [1] have renewed interest in the understanding of supersolids and whether mechanisms exist in solid ^4He to allow for supersolid-like effects. Ground state vacancies would lead to bose condensation and superfluidity. Using Path Integral Monte Carlo we examine vacancy formation energies, vacancy-vacancy interactions and the effect of vacancies on supersolid behavior in solid ^4He.

[1] E. Kim and M. H. Chan, Science **305**, 1941 (2004).

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