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# D-D (H-H) Interactions within the Interstices of Pd

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**Abstract:**

Embedded atom, local-density-functional, and Hartree-Fock methods are used to calculate the effective interaction between deuterium (or equivalently within the Born-Oppenheimer approximation hydrogen) nuclei within palladium. No effects were found to suggest that the repulsion between deuterons in gas phase $D_2$ is reduced within the octahedral and tetrahedral interstices of this transition metal.

**Keywords:**

palladium-deuterides, $D_2$, clusters, embedded atom method, density functional calculations, Hartree-Fock calculations, nuclear fusion