ID: 1.1.2e

Title: \textit{Ab initio} theory of paramagnons in the normal state of unconventional superconductors

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We study the spin excitation of the paramagnetic normal state of unconventional superconductors. The excitations are commonly referred to as \textit{paramagnons}. They involve the spin flip and typically show a clear dispersion when their momentum is varied. However, in contrary to the spin-waves in magnetically ordered materials, they are gaped and usually strongly damped. We resort to our recently developed implementation of the linear response time dependent density functional theory [Buczek \textit{et al.}, \textit{Phys. Rev. Lett.} \textbf{105}, 097205 (2010)] in order to determine the spin-flip fluctuations spectra. First, we study fcc Pd doped with hydrogen (palladium hydride, PdH$_{x}$, $0