

Nuclear Quadrupole Interaction at $^{187}\text{W}(\beta^-)^{187}\text{Re}$ in Tungsten Compounds*

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Z. Naturforsch. **53a**, 323–339 (1998); received January 26, 1998

The nuclear quadrupole interaction at $^{187}\text{W}(\beta^-)^{187}\text{Re}$ was determined by time differential perturbed angular correlation in WC, WS₂, WSe₂, WSi₂, and CaWO₄ to be (at 300 K): $\nu_Q = 335.9(2)$, 1094.9(1), 1031.6(1), 1131.5(1), and 1085.9(1) MHz, respectively. The asymmetry parameter η was zero in all cases. For WSe₂ and CaWO₄ the temperature dependence of the nuclear quadrupole interaction was determined between 300 K and about 900 K. Ab initio calculations of electric field gradients, using the WIEN95-code, were carried out for WC, WS₂, WSe₂, and WSi₂ at W-sites and Re-impurities, and for CaWO₄ at W-sites. Good agreement with experimental data was found.

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