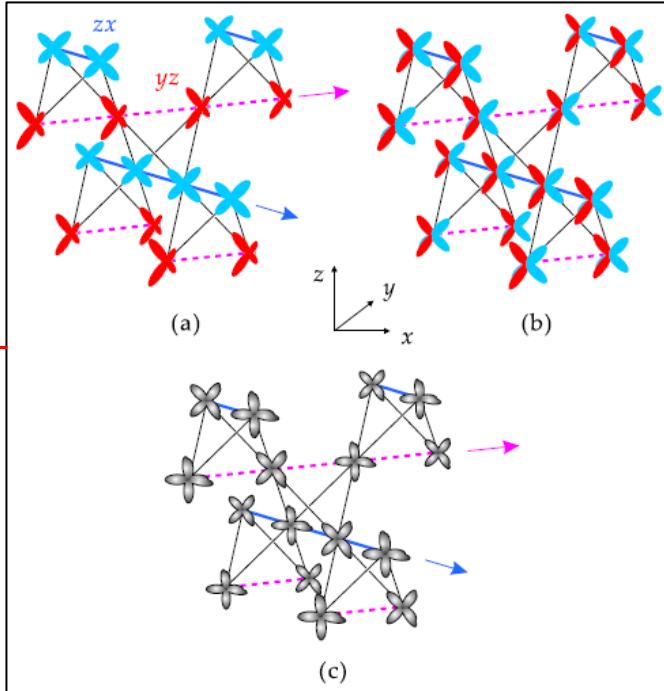




# Two Inequivalent Sublattices and Orbital Ordering in $\text{MnV}_2\text{O}_4$ by $^{51}\text{V}$ NMR

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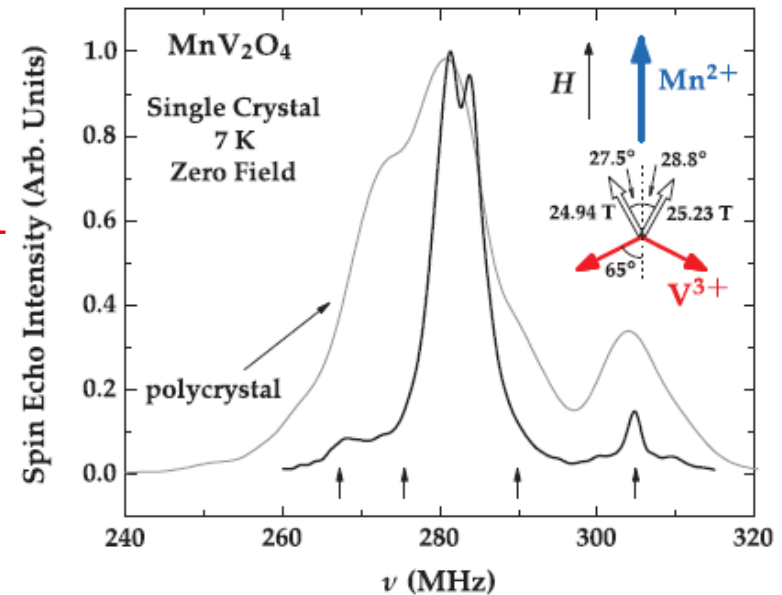
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$^{51}\text{V}$  NMR spectrum of single crystal is much narrower than that of polycrystal, revealing two well-resolved lines. The two lines suggest two inequivalent V sites that are *not* allowed in the simple (anti)ferro orbital ordering. Only Sarkar's model among the proposed models is consistent with our NMR result.

Three possible orbital ordering models in  $\text{MnV}_2\text{O}_4$ . (a) antiferro-orbital order (b) ferro-orbital order (c) Sarkar's model [1] in which the same mixed orbital rotates by about  $45^\circ$  alternately within and between orbital chains in the  $I4_1/a$  tetragonal space group.

[1] S. Sarkar, T. Maitra, R. Valenti, and T. Saha-Dasgupta, *Phys. Rev. Lett.* **102**, 216405 (2009)



*Phys. Rev. B*, **80**, 140406(R) (2009)