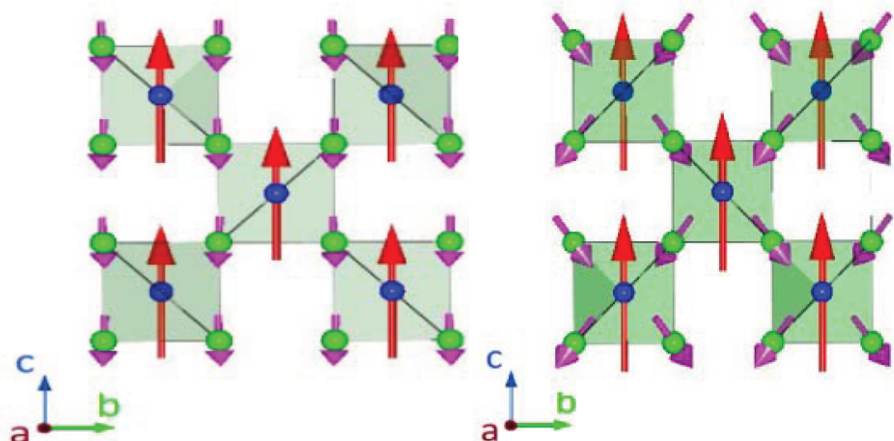


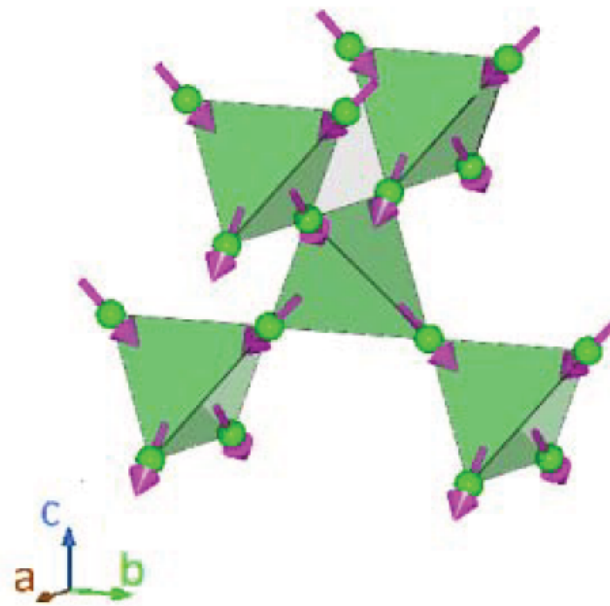
# Magnetic order and ice rules in the multiferroic spinel $\text{FeV}_2\text{O}_4$

*Neutron diffraction study done at HB2A of  $\text{FeV}_2\text{O}_4$ , which is rare in exhibiting spin and orbital degrees of freedom on both cation sublattices of the spinel structure., showing that the direction of ordered vanadium spins at low temperature obey 'ice rules' more commonly associated with the frustrated rare-earth pyrochlore systems*



*(left) Sketch of the collinear ferrimagnetic state in the FCO phase, as seen along the cubic (001) direction.  
(right) A similar sketch of the canted state seen in the LTT phase.*

G. J. MacDougall, et al, arXiv: 1204.2812v2



*A view of V 3+ moments in low-temperature ordered state clearly demonstrating the 2-in-2-out spin structure on the pyrochlore sublattice.*