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EPR Study of Amorphous V_2O_5From 125K – 370K KENNETH HARTMAN, D.B. BAKER, K.C. MAYNES, P.H. BUNTON, William Jewell College, S. FULLER, Coe College — Previous EPR spectra for V_2O_5 at low temperatures ($\sim$120K) reveal well-resolved resonances in which transitions are attributed to anisotropic hyperfine interactions. In contrast, recent results from our laboratory show EPR spectra with broad resonances that exist from 125K-370K with no apparent appearance of hyperfine interactions. EPR spin counting also indicates a high concentration ($\sim 10^{20}$ spins/cm^3) of paramagnetic centers which suggests that the line widths are limited by spin-spin relaxation of the electron spin system. Current data reveal that EPR signal intensities increase more rapidly than (Temperature)$^{-1}$. In particular, a factor of $\sim$10 increase is seen when the temperature is decreased by a factor of 2. Possibilities for enhanced signal intensities include the presence of superparamagnetism or spin glass behavior. Current investigations are concerned with evaluations of a variety of EPR parameters over a temperature range from 125-370K.

Kenneth Hartman

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