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Pressure-dependent Raman scattering study of CoV$_2$O$_4$\(^1\) TAYLOR BYRUM, SAMUEL GLEASON, Univ of Illinois - Urbana, HAILONG ZHOU, Univ of Tennessee - Knoxville, S. LANCE COOPER, Univ of Illinois - Urbana — The AV$_2$O$_4$ (A = Cd, Mn, Mg, Zn, Co) spinel family provides a fertile ground to explore the crossover between electron localization and itinerancy, which can be tuned with chemical (A-site substitution) and/or physical pressure. CoV$_2$O$_4$ resides closest to the predicted itinerant electron limit for the vanadium spinel family. Recent experiments have shown the existence of a critical V-V separation by inducing a metallic transition in CoV$_2$O$_4$ with a pressure of \(~6\) GPa.\(^2\) While the structure of CoV$_2$O$_4$ has been theoretically suggested to remain cubic through the metallic transition,\(^3\) no structural measurements under pressure have been performed. Raman spectroscopy is well suited to address this issue, as it is sensitive to even subtle structural changes. In this presentation, I present a pressure-dependent Raman scattering study of CoV$_2$O$_4$ to elucidate the role the structure plays in the metallic transition.

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