Quasi-One-Dimensional Ferromagnet $CuAs_2O_4$

<u>K. Caslin</u>,[1,2] R.K. Kremer,[1] F.S. Razavi,[2] A. Schulz,[1] A. Munoz,[3]
F. Pertlik,[4] J. Liu,[5] M.H. Whangbo,[5] and J.M. Law[6]

[1] *Max-Planck-Institute for Solid State Research*
[2] *Brock University*
[3] *Universidad de La Laguna*
[4] *Vienna University of Technology,*
Institute of Mineralogy and Crystallography
[5] *North Carolina State University*
[6] *Hochfeld-Magnetlabor Dresden, Helmholtz-Zentrum*

Many Cu^{2+} ($S=1/2$) linear-spin-chains systems exhibit interesting low-dimensional magnetism. Most often, these spin-chains support FM nearest-neighbor (NN) and AFM next-nearest-neighbor (NNN) interactions. Systems of this type are known to develop AFM incommensurate spin-spiral structures and sometimes multiferroic behavior. There exists a magnetic phase diagram which can predict the intra-chain behaviour of spin-chain compounds using the ratio of the NN over the NNN spin exchange constants, α=Jnn/Jnnn, with a quantum critical point exists on the boundary at α=-4. We report on $CuAs_2O_4$, mineral name Trippkeite, featuring CuO_2 ribbon chains. Trippkeite is an unusual spin-chain system because it shows long-range FM ordering and has an α ratio close to -4.