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Single Crystal Growth of Candidate Spin Orbital Liquid Iron Scandium Sulfide ($FeSc_2S_4$)[1] JENNIFER MOREY, CHRISTOPHER PASCO, KEMP PLUMB, BENJAMIN TRUMP, TYREL MCQUEEN, SEYED KOOHPAYEH, Johns Hopkins University — Iron scandium sulfide ($FeSc_2S_4$), a spinel of the form AB_2X_4, is a candidate spin-orbital liquid which has been the subject of many experimental and theoretical studies. Experimental work on this material has been hindered by the lack of large high quality single crystals. We report the first successful growths of large single crystal specimens of this material and present measurements of the structure and physical properties of these, along with measurements on stoichiometric powders. These crystal growths enable a wide variety of measurements that have so far been impossible on this interesting spin orbital liquid candidate material.

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