

Abstract Submitted  
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**Optimizing**

**the solution growth of the superconductor  $\text{CaKFe}_4\text{As}_4$** <sup>1</sup> WILLIAM R. MEIER, T. KONG, G. DRACHUCK, S. M. SAUNDERS, A. SAPKOTA, A. KREYSSIG, A. I. GOLDMAN, S. L. BUD'KO, P. C. CANFIELD, Iowa State University, Ames, Iowa 50011, USA., Ames Laboratory US DOE, Department of Physics and Astronomy — High-quality single crystals of the new iron-based superconductor  $\text{CaKFe}_4\text{As}_4$  were grown from a high-temperature, quaternary, iron-arsenic rich solution[1]. The characteristics of this four-element system lead to a modified optimization routine of the growth protocol exploiting measurements of physical properties (resistance and magnetization) in addition to more routine x-ray phase analysis. We will emphasize how events informed our adjustments of the protocol and present a schematic phase diagram established by the process. [1] W. R. Meier *et al.*, Phys. Rev. B 94, 064501 (2016).

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