Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**Improved growth of Ln1111 superconducting crystals from NaAs/KAs flux** NIKOLAI D. ZHIGADLO, Laboratory for Solid State Physics, ETH Zurich, Switzerland, S. WEYENETH, Physik-Institut der Universitat Zurich, Switzerland, S. KATRYCH, P.J.W. MOLL, Laboratory for Solid State Physics, ETH Zurich, Switzerland, K. ROGACKI, Institute of Low Temperature and Structure Research, Wroclaw, Poland, S. BOSMA, Physik-Institut der Universitat Zurich, Switzerland, R. PUZNIAK, Institute of Physics, Warsaw, Poland, J. KARPINSKI, B. BATLOGG, Laboratory for Solid State Physics, ETH Zurich, Switzerland —
Single crystals of the LnFeAsO (Ln1111, Ln = Pr, Nd, and Sm) family with lateral dimensions up to 1 mm were grown from NaAs and KAs flux using the cubic anvil high-pressure and high-temperature technique. The crystals become superconducting when O is partially substituted by F ($PrFeAsO_{1-x}F_x$ and $NdFeAsO_{1-x}F_x$) or when Fe is substituted by Co ($SmFe_{1-x}Co_xAsO$). In $SmFe_{1-x}Co_xAsO$ the maximum $T_c$ is 16.3 K for x = 0.8. From transport and magnetic measurements we estimate the critical fields and their anisotropy, and we find these superconducting properties to be quite comparable to the ones in $SmFeAsO_{1-x}F_x$ with a much higher $T_c$ of $\approx$ 50 K. The magnetically measured critical current densities are as high as $10^9$ A/m$^2$ at 2 K up to 7 T, with indications of the usual "fish tail" effect.

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Date submitted: 09 Nov 2012 Electronic form version 1.4