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Effects of annealing on $Ba(Fe_{1-x}Co_x)_2As_2$ and $Ba(Fe_{1-x-y}Co_xTM_y)_2As_2$ (TM=Mn,Cr) single crystals[1] ALEX THALER, SHENG RAN, Iowa State University/Ames Lab, ALFRED KRACHER, Retired, WARREN STRASZHEIM, JIA YAN, SERGEY BUD'KO, PAUL CANFIELD, Iowa State University/Ames Lab — Single crystals of $Ba(Fe_{1-x-y}Co_xTM_y)_2As_2$ (TM=Cr, Mn) have been grown and characterized by structural, magnetic and transport measurements, both in the as-grown state (quenched from $\sim 1000^\circ$ C) as well as after post-growth annealing. This phase space has many parameters and is rich and complex, with superconducting transition temperatures depending upon x and y, as well as annealing temperature and time. In this talk, we will present T-x and T-y, as well as T-time and T-T (for annealing) phase diagrams and discuss the implications for future research into these complex materials.

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