

## Phase diagram of the $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ single crystal grown from in flux

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### Resumo

The interplay between magnetism and superconductivity in the iron arsenide superconductors have generated great interest in past years. Here we present the growth and characterization of  $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$  single crystals grown from In-rich flux, which represents an alternative to the conventional self-flux method. This method does not require excess Fe or As, which the latter is a danger to the grower. The crystals have dimensions up to  $2.0 \times 2.0 \times 0.05 \text{ mm}^3$ . They were characterized by electrical resistivity, magnetic susceptibility, specific heat and X-ray diffraction measurements. The determination of the transition temperatures allowed the construction of the phase diagram for this series. The obtained phase diagram is confronted with the ones in literature.