Fisk crystal growth technique
Used for Eu3-In2-P4

Synthesis. The starting materials were Eu (99.999%, Ames Lab) 1/8" ribbon, cut into small pieces, red P (J. Matthey, Puratronic), crushed into small pieces, and In shot (Aesar, 99.99%), used as received. All reactants are mixed in a mole ratio of Eu:In:P = 3:120:4 under N_2 atmosphere. The elements were placed in a 2 ml cylindrical alumina crucible with Eu (136.8 mg) and P (37.2 mg) between two layers of In (4.1335g). Another crucible filled with quartz wool was inverted and covered the reaction crucible, and the entire system was sealed in a quartz ampoule under 1/5 atm Ar. The sealed reaction container was heated accordingly: ramp to 500 ºC over a period of 1 hr and dwell for 1hr, ramp to 1100 ºC over a period 1 hr, dwell for 6 hrs, cool at 3 ºC/hr to 850 ºC and dwell for 15 hrs. The reaction vessel was removed from the furnace at 850 ºC, inverted and centrifuged. Large, 1-2 mm^3, crystals were obtained. When exposed to air, the black crystals decompose into a yellow powder. Therefore, the reaction product was kept in a N_2-filled dry box equipped with a microscope and protected from air exposure