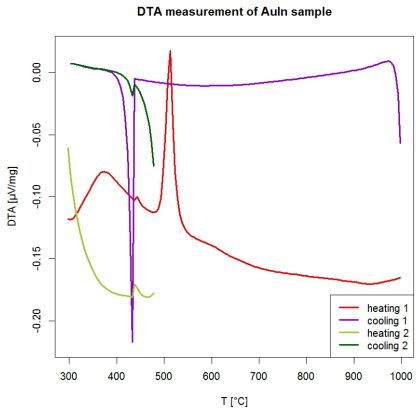


**Figure 1.** DTA curve showing a first melt at T = 440°C, a second one at T = 515°C and solidification at T = 436°C.

**Keywords:** Intermetallics, modulation, powder diffraction

## MS26-P3 $ErCu_{0.5}Ga_{3.5}$ – A (3+1)D-incommensurately modulated variant of the $BaAl_4$ type

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Ternary intermetallic systems R-Cu-Ga were widely studied for all the rare earth metals and uranium [1,2]. The gallium rich intermediate phases $RCu_xGa_{4-x}$ were reported to crystallize as tetragonal or orthorhombically distorted derivatives of the $BaAl_4$-type structure [3]. Moreover, some of these phases tend to form modulated structures due to disorder that might occur in the R and/or Cu/Ge crystal sublattices [4].

Single crystals of the ternary compound $ErCu_{0.5}Ga_{3.5}$ were grown by the self-flux method. The structure of $ErCu_{0.5}Ga_{3.5}$ was determined by single-crystal X-ray diffraction recorded at 120 and 300 K. The compound crystallizes in an incommensurately modulated (3+1)D structure, being related to the tetragonal $BaAl_4$ -type. The structure was refined in the monoclinic superspace group $X2/m(\alpha,0,g)00$, with modulation vector $q$ = (0.184(2), 0, 0.347(1)), $a$ = 413.99(9), $b$ = 963.83(11), $c$ = 410.52(16) pm, and $b$ = 90.11(1)° at 120 K. The modulation wave occurs in the Ga/Cu disordered sublattice and $q$ was found to be similar at both temperatures. Furthermore, analysis of the reciprocal pattern of $ErCu_{0.5}Ga_{3.5}$ also indicates a twinning effect, described by a two-fold axis around $a^*$.

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