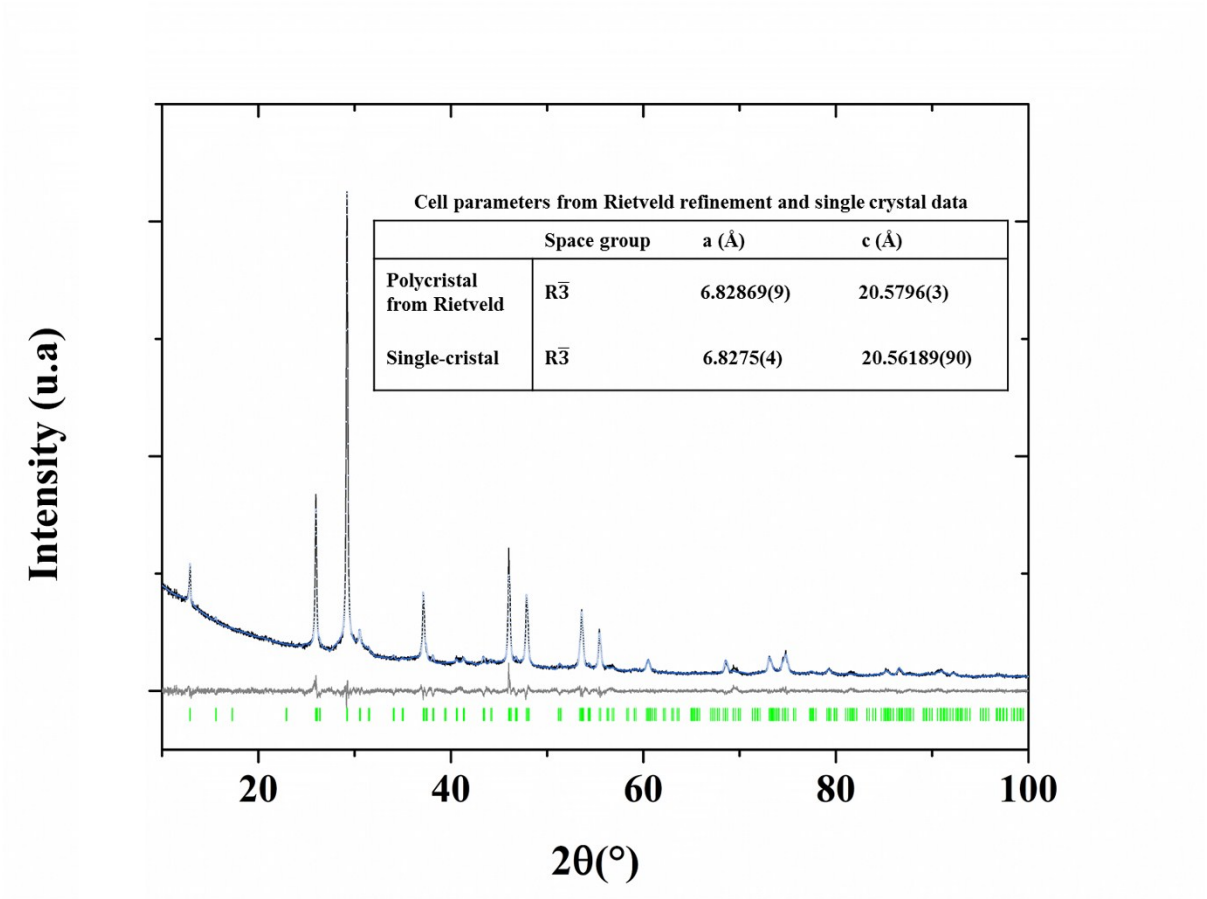
SFig.1



SFigure 1. Rietveld refinement plot for polycrystalline $Cr_2Ge_2Te_6$. Plot is represented as follows: observed (black line), calculated (blue dot), and difference (grey line) intensities. Bragg positions are indicated by green vertical bars. The included table shows the correspondence between the parameters of single-crystal characterization[16] and the present Rietveld refinement.

STable 1. SPS Conditions Used to Densify the Four Polycristalline Samples.

Compositions	Heating time	Heating temperature	Remaining time	Cooling time	Pressure at all steps
$InSiTe_3$	2h30 (Step by Step)	773 K	30 min	60 min	28 MPa
$Cr_2Si_2Te_6$	2h (Step by Step)				
$In_2Ge_2Te_6$	45 min	710 K		45 min	64 MPa
$Cr_2Ge_2Te_6$		823 K			

STable 2. Details on the Structure Refinement of Polycristalline $Cr_2Ge_2Te_6$ and Atomic Coordinates (x,y,z), Site Occupation Factors, Isotropic Displacement Parameters (Å²) and their Estimated Standard Deviations Obtained from the Rietveld Refinement of $Cr_2Ge_2Te_6$.

Physical, Crystallographic and Analytic data						
compound			$Cr_2Ge_2Te_6$			
diffractometer radiation (Å)			CuKα,β = 1.540600 and 1.544400			
2θ range (deg), no. of points			5 – 120, 8758			
step size (deg)			0.013130			
no. of background points			93			
profile function			Thompson-Cox-Hastings pseudo-Voigt			
no. of refined parameters			16			
space group			$R\bar{3}$			
unit-cell parameters (Å)			a = b		6.82869(9)	
			c =		20.5796(3)	
cell volume (Å³)			831.08(2)			
reliability factors			R_F (%)		7.83	
			R_B (%)		6.06	
			R_{WP} (%)		4.08	
			χ^2		2.43	
Refined coordinates, Atomic Displacement Parameters and their Estimated Standard Deviations from Rietveld Refinement						
atom	Wyckoff position	occ	x	y	z	U_{iso} (Å²)
Cr	6c	1	0	0	0.3283(5)	0.054(3)
Ge	6c	1	0	0	0.0612(3)	0.076(3)
Te	18f	1	0.0025(7)	0.3534(3)	0.08442(1)	0.049(0)

CAPTIONS:

SVid:

SVid1. X-ray diffraction evolution in temperature of the reflection intensities corresponding to $InSiTe_3$, In_2Te_3 and Si_2Te_3, resulting from the incongruent melting of the $InSiTe_3$ compound