Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supporting Information for

Synthetically Tuned Structural Variations in $CePd_xGe_{2-x}$ (x = 0.21, 0.32, 0.69) towards Diverse Physical Properties

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Table S1. Anisotropic displacement parameters ($Å^2x10^3$) at 293(2) K with estimated standard deviations in parentheses.

Label	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
$CePd_{0.32}Ge_{1.68}$						
Ce	14(2)	14(2)	14(2)	7(1)	0	0
M	14(2)	14(2)	24(2)	7(1)	0	0
$CePd_{0.21}Ge_{1.79}$						
Ce	13(1)	13(1)	14(1)	0	0	0
M	29(1)	22(1)	23(1)	0	0	0
$CePd_{0.69}Ge_{1.31}$						
Ce1	12(2)	12(2)	6(4)	6(2)	0	0
Ce2	10(2)	10(2)	4(2)	5(1)	0	0
M1	12(3)	12(3)	14(4)	6(2)	0	0
M2	9(2)	9(2)	11(3)	5(1)	0	0

The anisotropic displacement factor exponent takes the form: $-2\pi^2[h^2a^{*2}U_{11} + ... + 2hka^*b^*U_{12}]$.

Table S2. Selected Bond lengths [Å] at 293(2) K with estimated standard deviations in parentheses.

Label	Distances		
$CePd_{0.32}Ge_{1.68}$			
Ce-M	3.25148(13)	M-M	2.46026(11)
$CePd_{0.21}Ge_{1.79}$			
Ce-M	3.2240(8)	M1-M1	2.4223(12)
$CePd_{0.69}Ge_{1.31}$			
Ce1-M1	3.232(3)	M2-M2	2.4902(3)
Ce2-M2	3.231(3)		

Symmetry transformations used to generate equivalent atoms:[1] x-1,y,-z (2) -x+1,-y,z (3) -x,-y-1,-z (4) x,y+1,z [1] x,y,-z (6) -x,-y,z (7) -x+1,-y,-z+1 (8) -x,-y,-z+1 (9) -x,-y-1,-z+1 [1] x-1,y,z (11) -x+1,-y-1,-z+1 (12) x,y-1,z (13) x+1,y,z (14) -x,-y-1,z (15) -x+1,-y-1,z

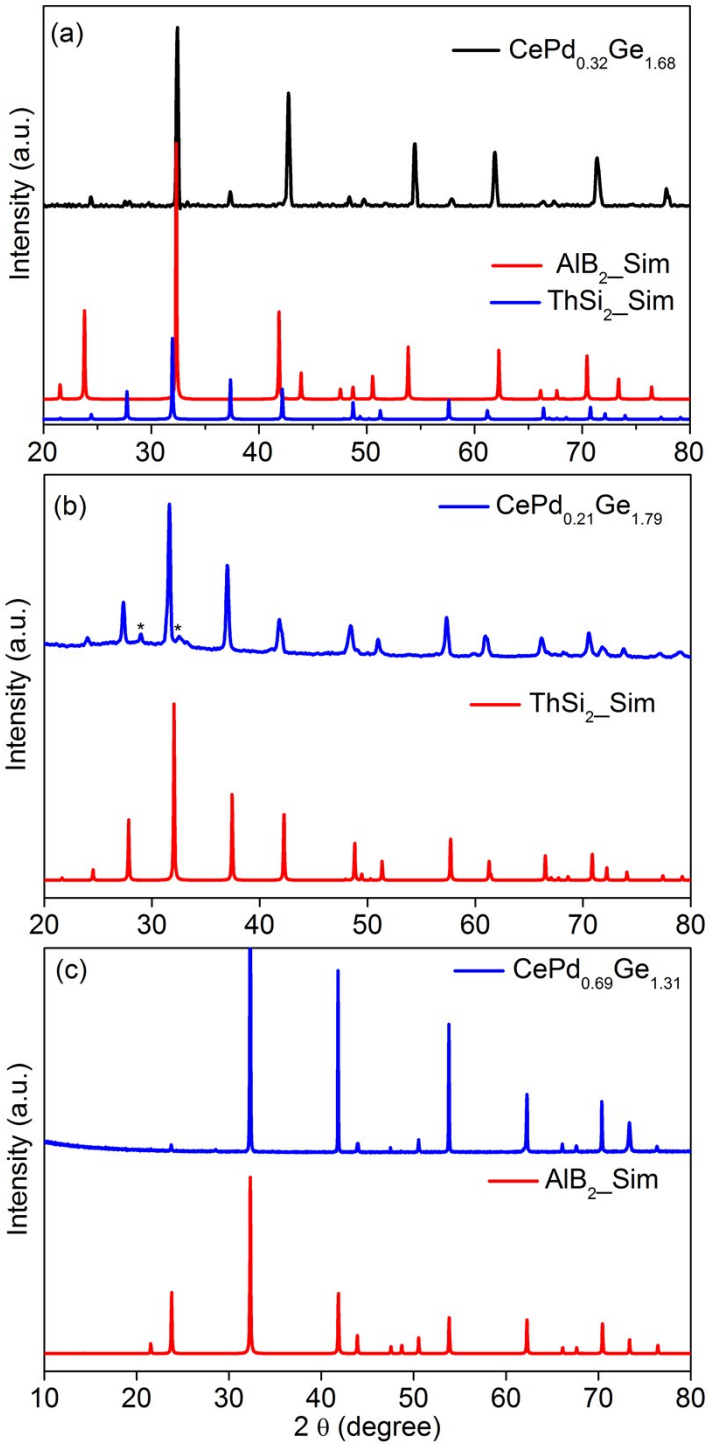

Figure S1. Comparison of experimental PXRD patterns of (a) $CePd_{0.32}Ge_{1.68}$, (b) $CePd_{0.21}Ge_{1.79}$ and (c) $CePd_{0.69}Ge_{1.31}$ with simulated structures crystallize in the AlB_2 and α-$ThSi_2$ structure types obtained from the single crystal structure refinement.

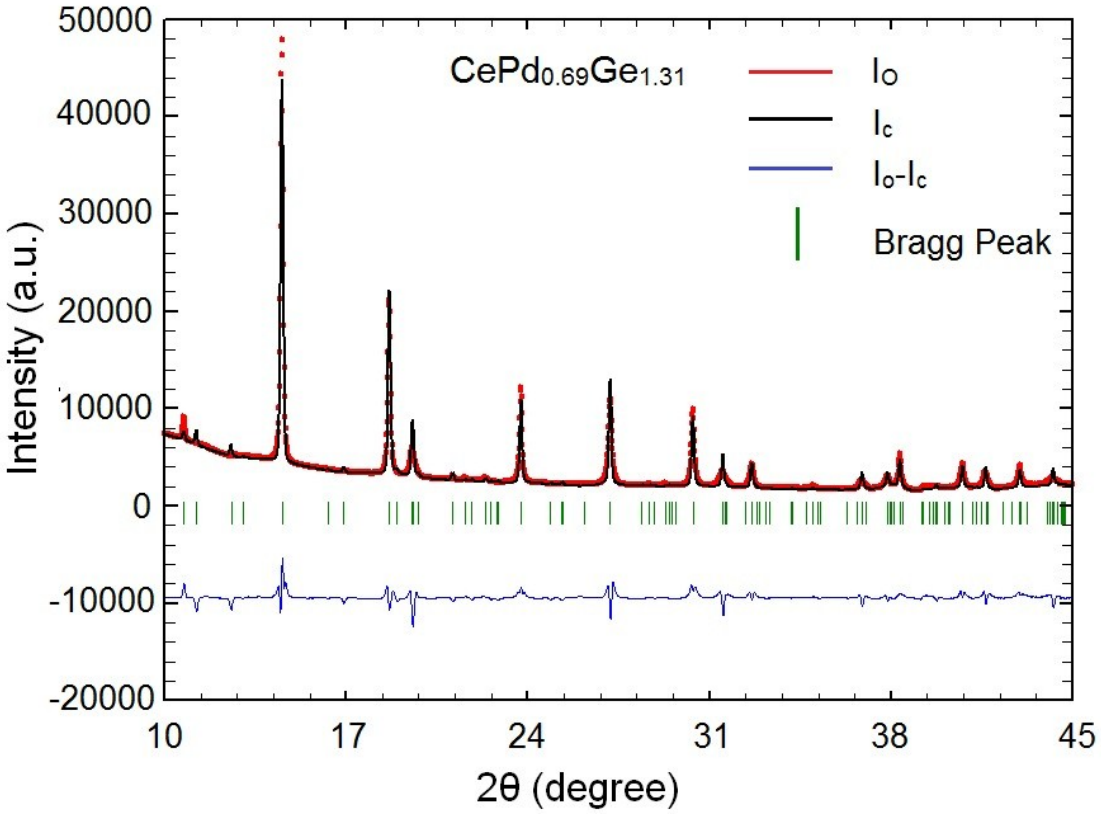

Figure S2. Rietveld refinement of synchrotron PXRD data collected on $CePd_{0.69}Ge_{1.31}$ at 0.7 Å wavelength using the simulated PXRD data obtained from the SCXRD refinement.