Supporting Information

for

Synthesis and characterization of $[PtIn_6](GeO_4)_2O$ and its solid solution $[PtIn_6](GaO_4)_{2-x}(GeO_4)_xO_{x/2}$ ($0 \leq x \leq 2$): Gradual color change of the solid solution from black (x = 0) to yellow (x = 2) as a consequence of quantum dot effect

Jürgen Köhler[a]*, Holger Friedrich[a], Myung-Hwan Whangbo [b]* and Antoine Villesuzanne[b,†]

[a] Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany

[b] Department of Chemistry, North Carolina State University, Raleigh, NC 27695-8204

[†] Permanent address: ICMCB-CNRS, 87 Avenue du Dr. Schweitzer, 33608 Pessac Cedex France

Table S.1 Crystallographic data and parameters of data collection and structure refinements of $PtIn_6Ge_2O_9$.

Empirical formula	$PtIn_6Ge_2O_9$
Formula weight	1173.21 g/mol
Space group; Z	$Fm\bar{3}m$ (No. 225), 4
Unit cell dimensions [a]	a = 1006.0(1) pm
Unit cell volume	1.0181(2) nm^3
F(000)	2032
Density (calculated)	7.654 g/cm^3
Crystal size	0.1 mm x 0.03 mm x 0.03 mm
Diffractometer type	IPDS Image Plate Diffractometer
Temperature	293(2) K
μ(MoKα), λ (MoKα)	32.86 mm^{-1}, 71.073 pm
Measuring mode	d = 50 mm, Oscillation, $0 \le \varphi \le 240.0°$, step width 1.0°
Θ-range for data collection	3.5° to 30.3°
Limiting indices	$-14 \le h \le 14$, $-14 \le k \le 14$, $-14 \le l \le 14$
Reflections collected	3206
Independent reflections	99
R_{int}:	8.45%
Refinement, program	Full-matrix least square method, SHELX-97
Number of free parameters, *GooF*:	11, 1.390
R1, *w*R2 ($I > 2\sigma(I)$):	1.6%, 4.2%
R1, *w*R2 (all data):	1.7%, 4.2%
Weighting (*a, b*):	0.0184, 2.7317[b]
Extinction:	0.00217(14)
Δρ(min), Δρ(max):	-1190, 976 e/nm^3

[a] Powder diffraction data

[b] Weighting scheme: $1/[\sigma^2(F_o^2) + (a \cdot P)^2 + b \cdot P]$ with $P = (\max(F_o^2, 0) + 2 \cdot F_c^2) / 3$

Table S.2 Anisotrope Auslenkungsparameter [pm^2] in $PtIn_6Ge_2O_9$.

atom	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
Pt	45(2)	U_{11}	U_{11}	0	U_{23}	U_{23}
In	67(3)	U_{11}	52(3)	0	U_{23}	U_{23}
Ge	43(3)	U_{11}	U_{11}	0	U_{23}	U_{23}
O1	77(9)	U_{11}	U_{11}	-7(11)	U_{23}	U_{23}
O2	80(20)	U_{11}	U_{11}	0	U_{23}	U_{23}

Figure S1. First Brillouin zone and high symmetry points for a face-centered cubic lattice.