

Supplementary Informations for

Hexacyano octahedral metallic clusters as versatile building blocks in the design of extended polymeric framework and clustomesogens

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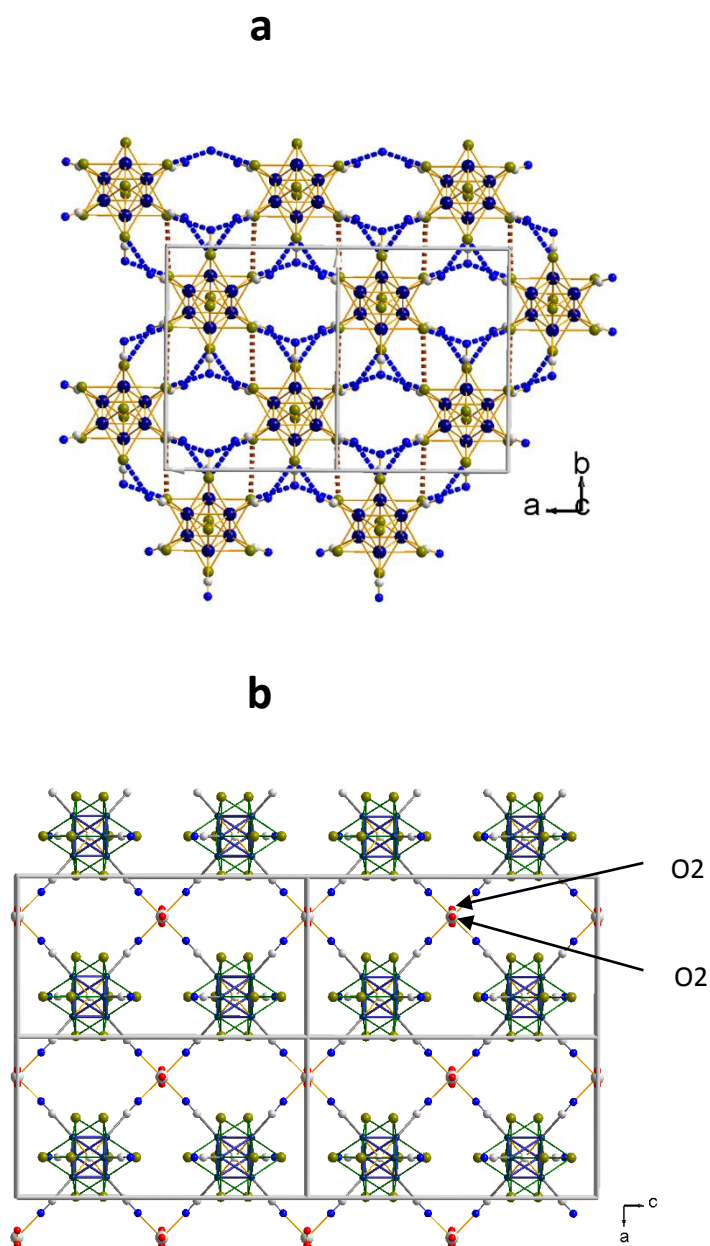


Figure S1: a) Projection of one cluster layer $[\text{trans-Cd}(\text{H}_2\text{O})_2][\text{Mo}_6\text{Br}^{\text{i}}(\text{CN})_6^{\text{a}}]$ in the (a, b) plan. The $\text{Br}^{\text{i}}\text{-Br}^{\text{i}}$ interactions are represented in dashed brown lines. The $\text{C1N1-Br}^{\text{i}}3$ interactions are represented in dashed blue lines; b) Representation of the square net in the (a, c) plan built up from $[\text{Mo}_6\text{Br}_8(\text{CN})_6]^{2-}$ cluster units and the $[\text{trans-Cd}(\text{H}_2\text{O})_2]^{2+}$ cations.

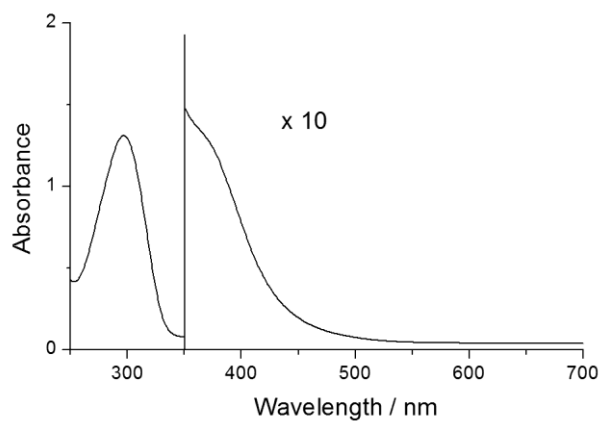


Figure S2: Absorption spectrum of compound (2) in CH_2Cl_2

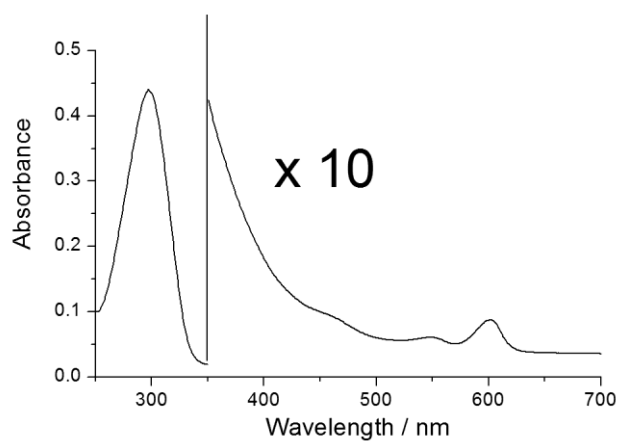


Figure S3: Absorption spectrum of compound (3) in CH_2Cl_2

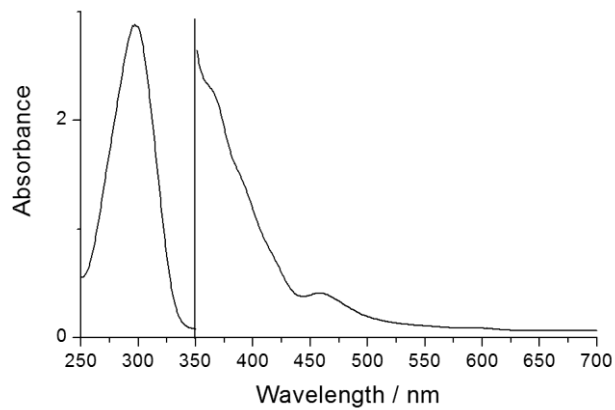


Figure S4: Absorption spectrum of compound (4) in CH_2Cl_2

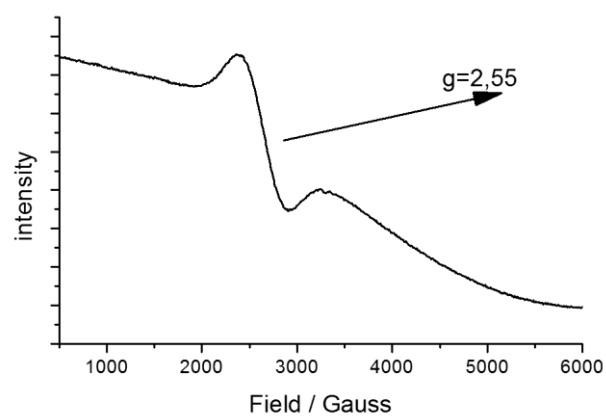


Figure S5: EPR spectrum of compound (3) at 77K

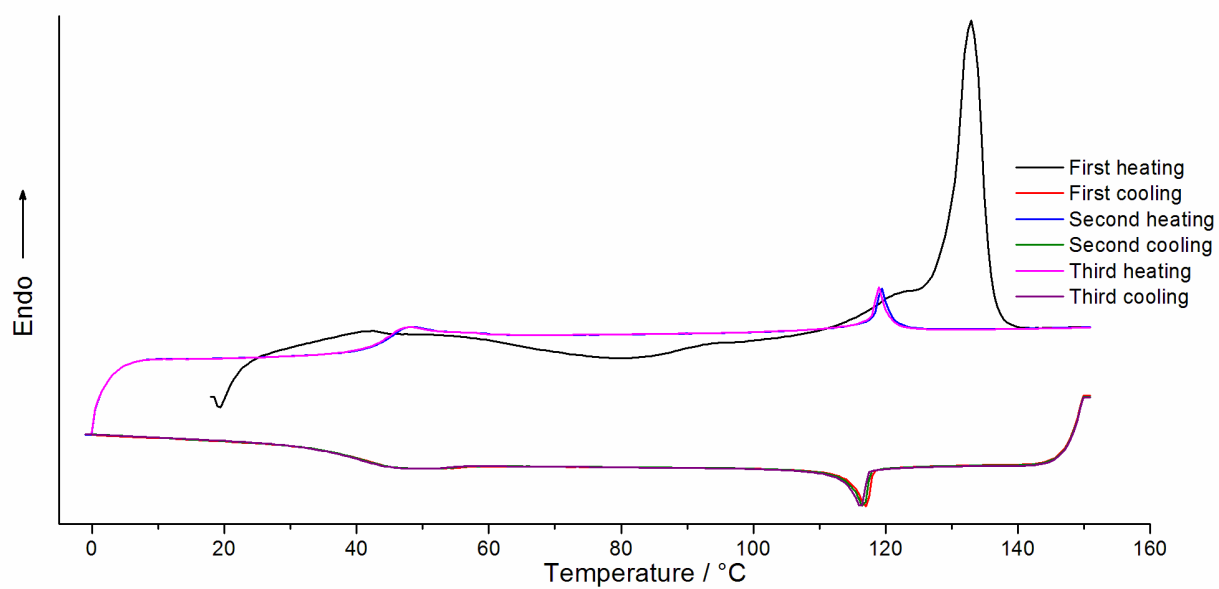


Figure S6: DSC Thermogram of compound (1) obtained at 10K.min⁻¹

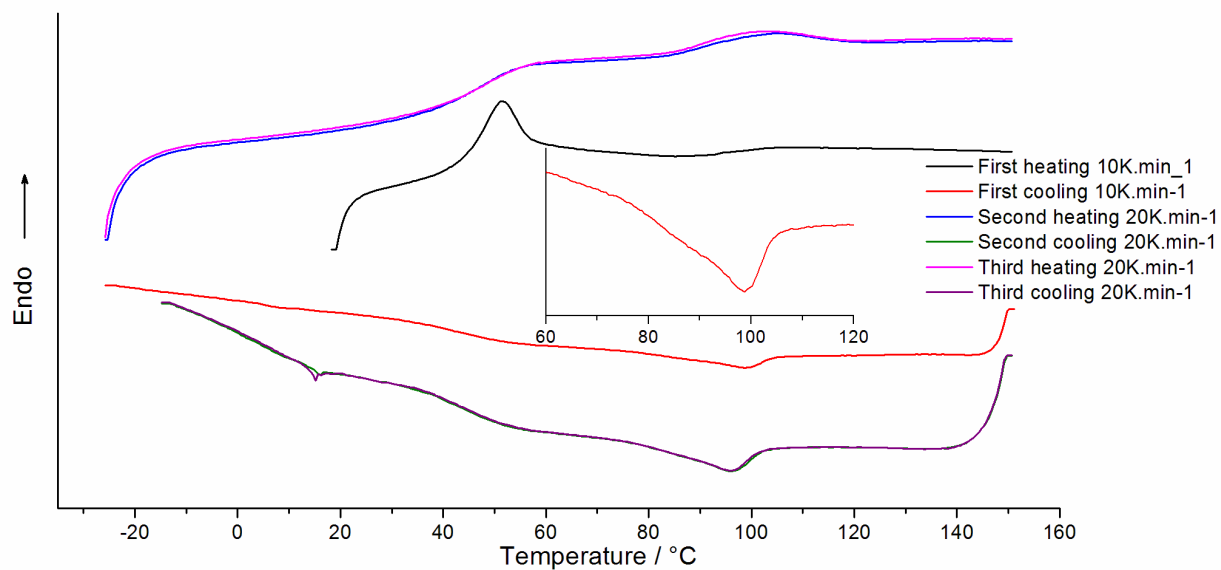


Figure S7: DSC Thermogram of compound (2) obtained at 10K.min⁻¹ (first heating and first cooling) and 20K.min⁻¹ second and third heating/cooling cycles

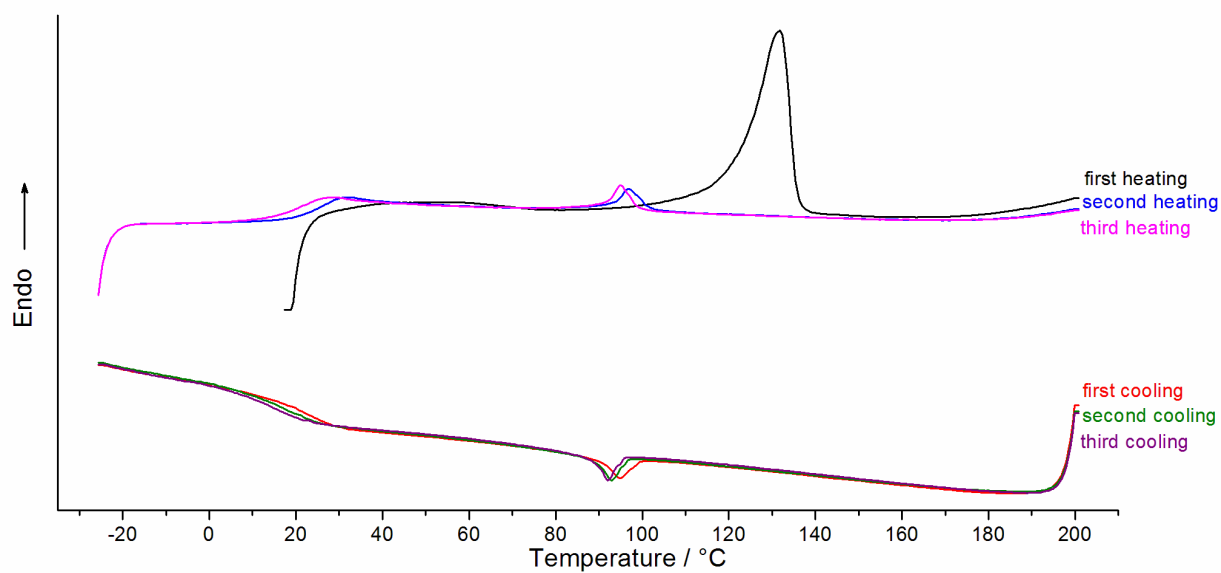


Figure S8: DSC Thermogram of compound (3) obtained at 10K.min⁻¹ heating up to 200°C.

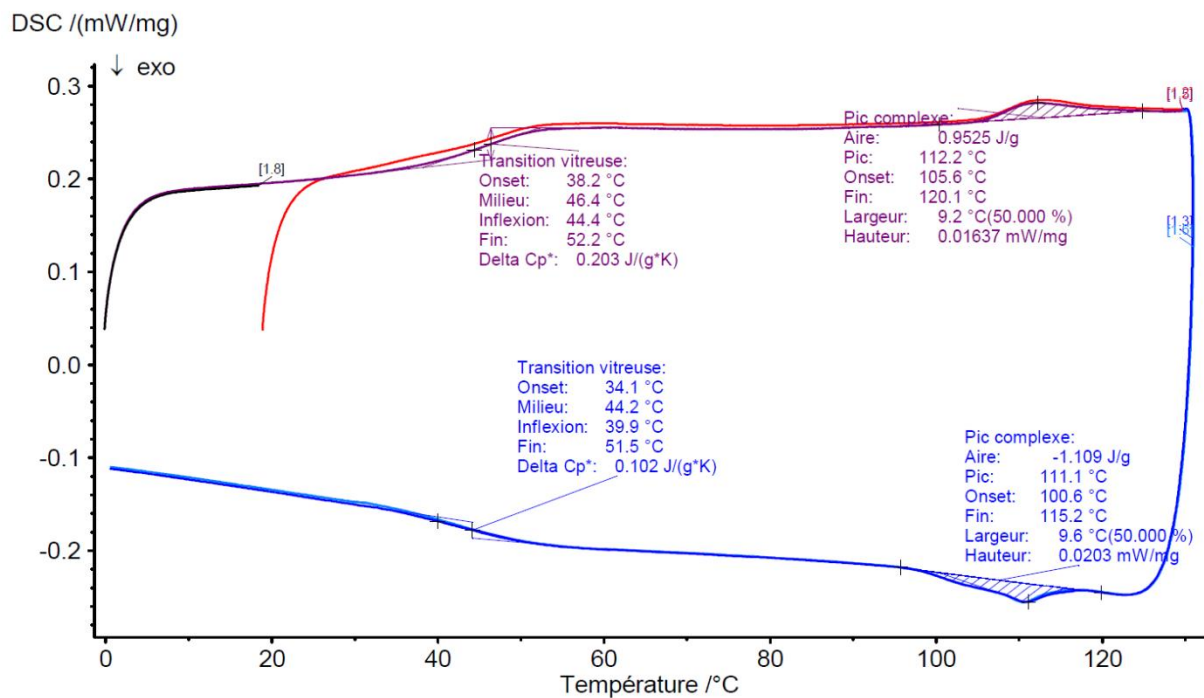


Figure S9: DSC Thermogram of compound (3) obtained at 10K.min⁻¹ (maximal heating temperature : 130°C)

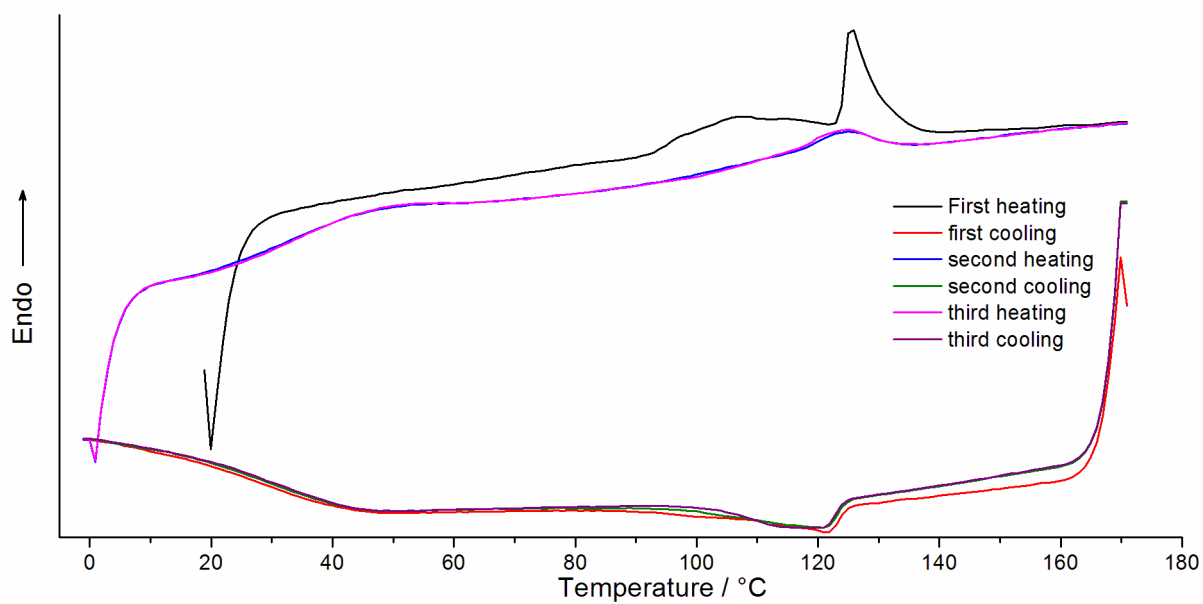


Figure S10: DSC Thermogram of compound (4) obtained at 10K.min⁻¹

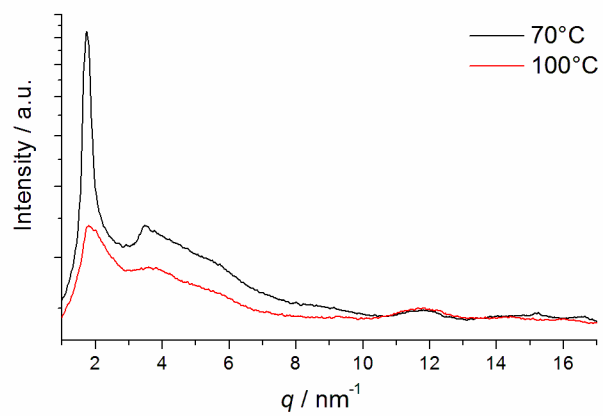


Figure S11: SAXS diffractograms of compound (2)

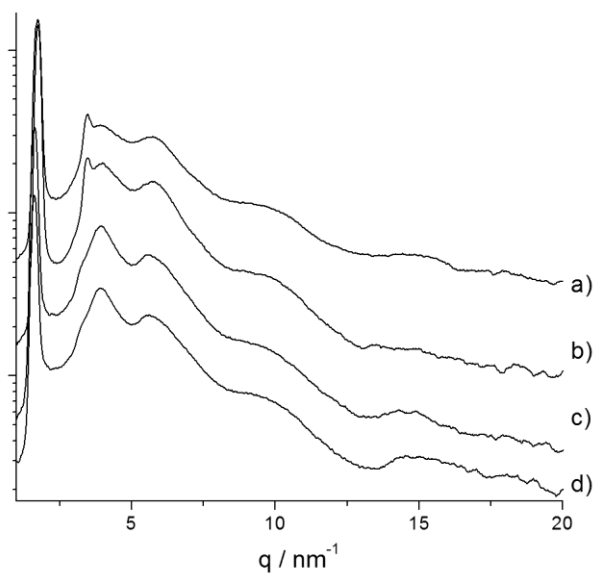


Figure S12: SAXS diffractograms of compound (4) at a) 110°C, b) 100°C, c) 60°C, d) 20°C

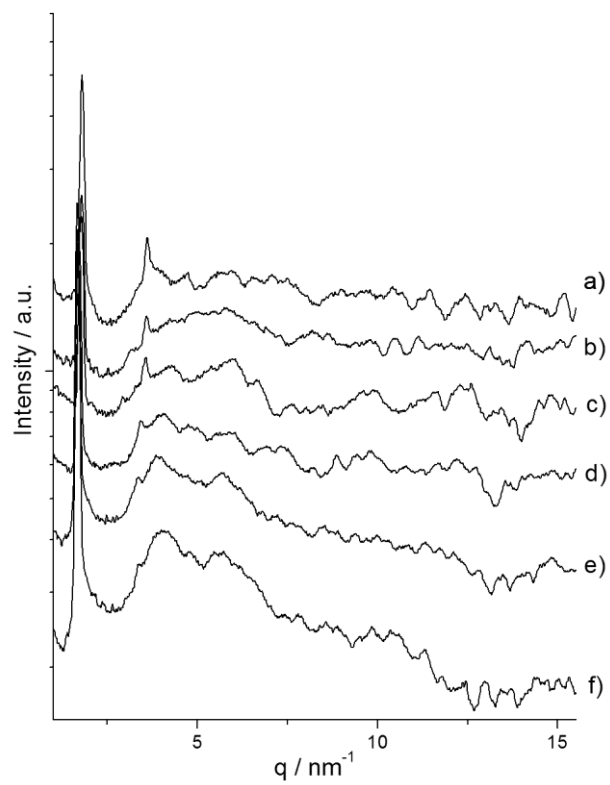


Figure S13: SAXS diffractograms of compound (3) at a) 100°C, b) 90°C, c) 80°C, d) 60°C, e) 40°C, f) 23°C

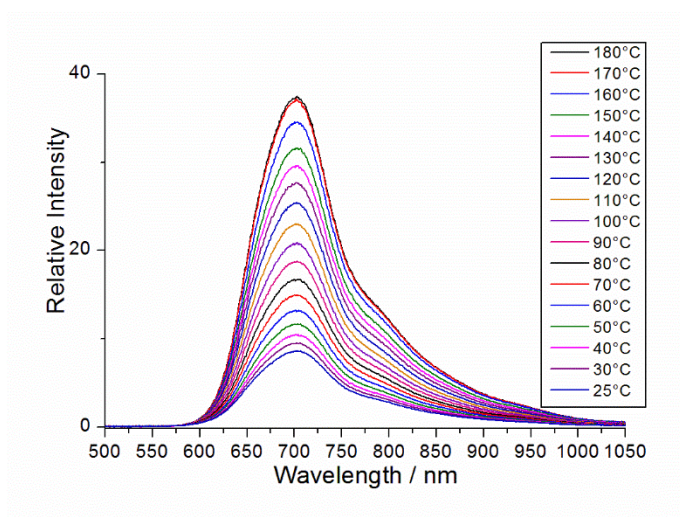


Figure S14: Corrected luminescence spectra of $\text{KCs}_3\text{Re}_6\text{Se}_8(\text{CN})_6$ in a powdered form at various temperature. $\lambda_{\text{exc}} = 360 \text{ nm}$.