Supporting Information

High-Temperature, High-Pressure Hydrothermal Synthesis, Characterization, and Structural Relationships of Layered Uranyl Arsenates

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Figure S1. The observed and simulated X-ray powder patterns of $Na_{14}[(UO_2)_5(AsO_4)_8]\cdot 2H_2O$.

Figure S2. The observed and simulated X-ray powder patterns of $K_6[(UO_2)_5O_5(AsO_4)_2]$. Asterisks denote the minor phase of $K_4[(UO_2)_3O_2(AsO_4)_2]$.

Figure S3. The observed and simulated X-ray powder patterns of $Rb_4[(UO_2)_3O_2(AsO_4)_2]$.

Figure S4. The observed and simulated X-ray powder patterns of $Cs_6[(UO_2)_5O_2(AsO_4)_4]$.

Figure S5. The EDS spectra of $Na_{14}[(UO_2)_5(AsO_4)_8]\cdot 2H_2O$, $K_6[(UO_2)_5O_5(AsO_4)_2]$, $K_4[(UO_2)_3O_2(AsO_4)_2]$, $Rb_4[(UO_2)_3O_2(AsO_4)_2]$, and $Cs_6[(UO_2)_5O_2(AsO_4)_4]$.

Figure S6. Thermogravimetric analysis of $Na_{14}[(UO_2)_5(AsO_4)_8]\cdot 2H_2O$ in flowing nitrogen gas at 2 °C/min.

Figure S7. Room-temperature fluorescence spectrum of **1** excited at 360 nm.

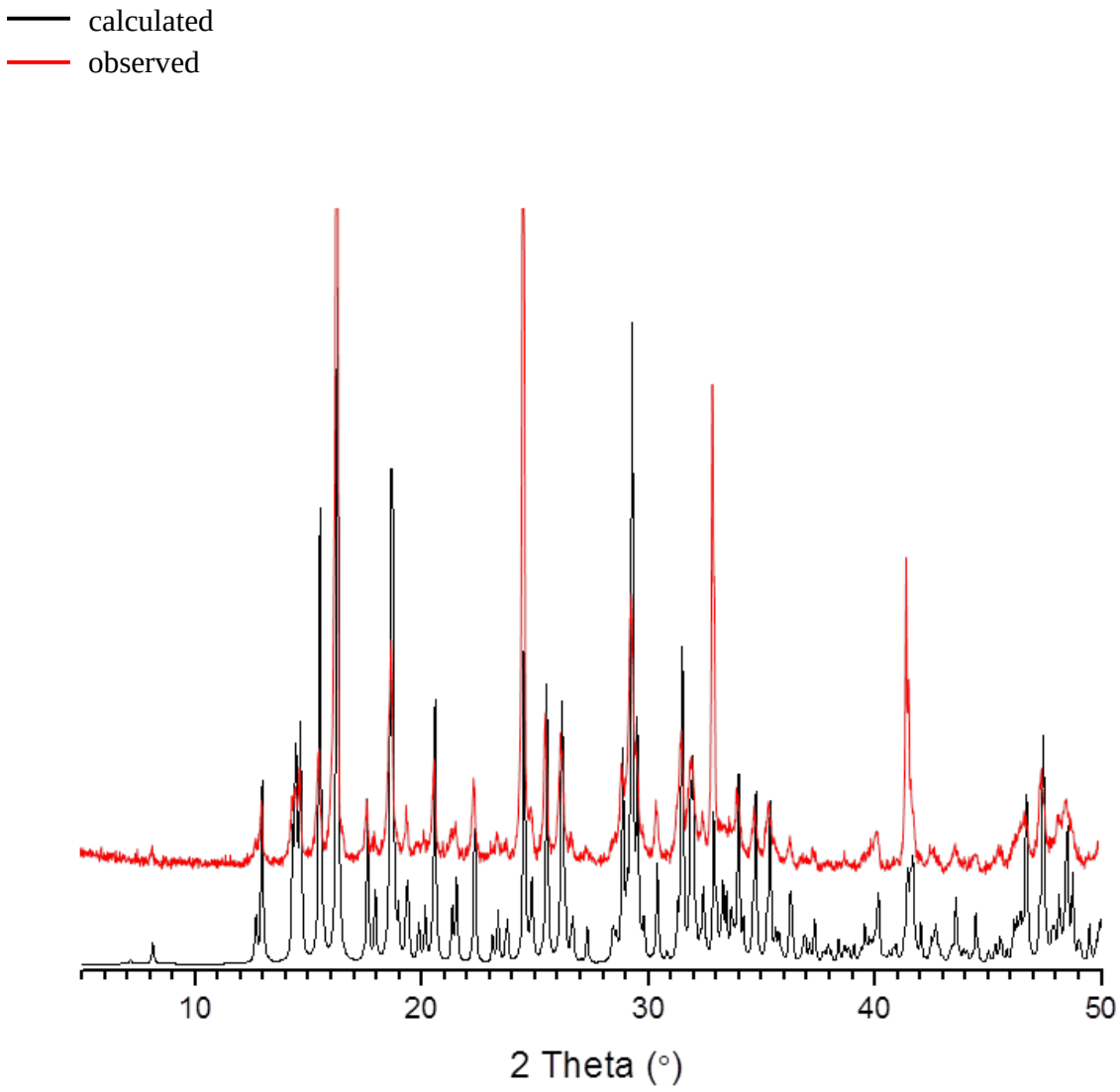


Figure S1

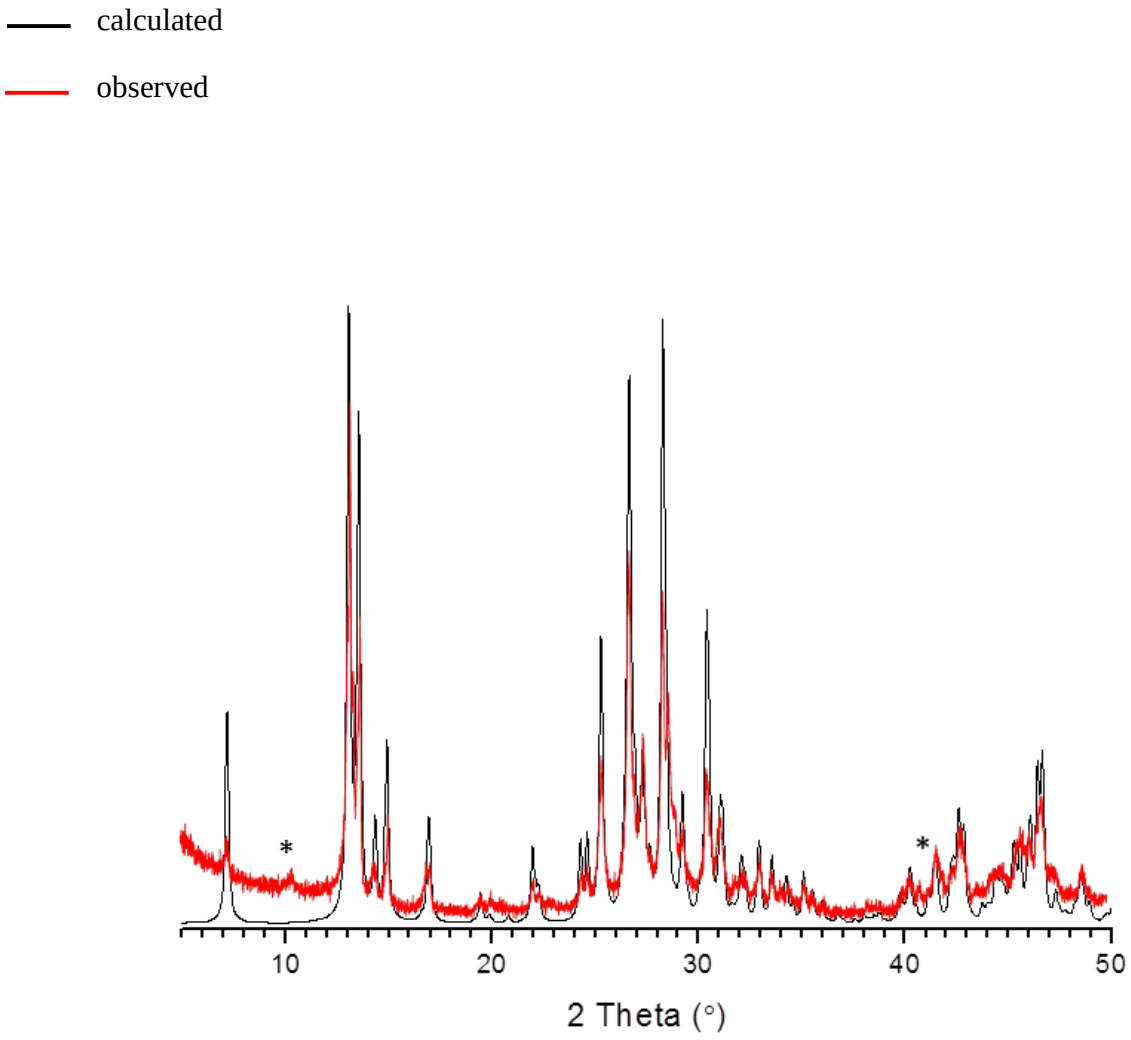


Figure S2

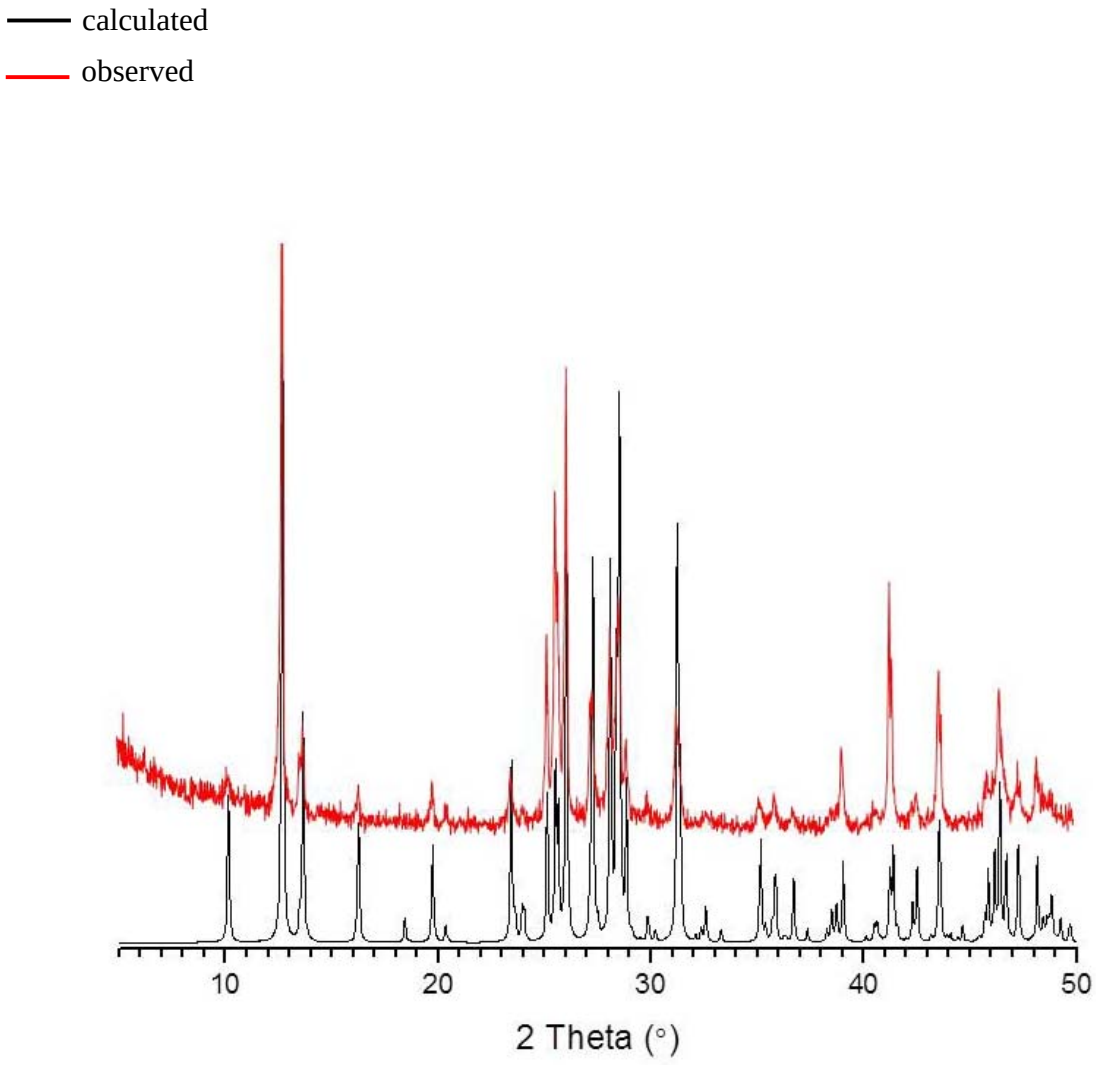


Figure S3

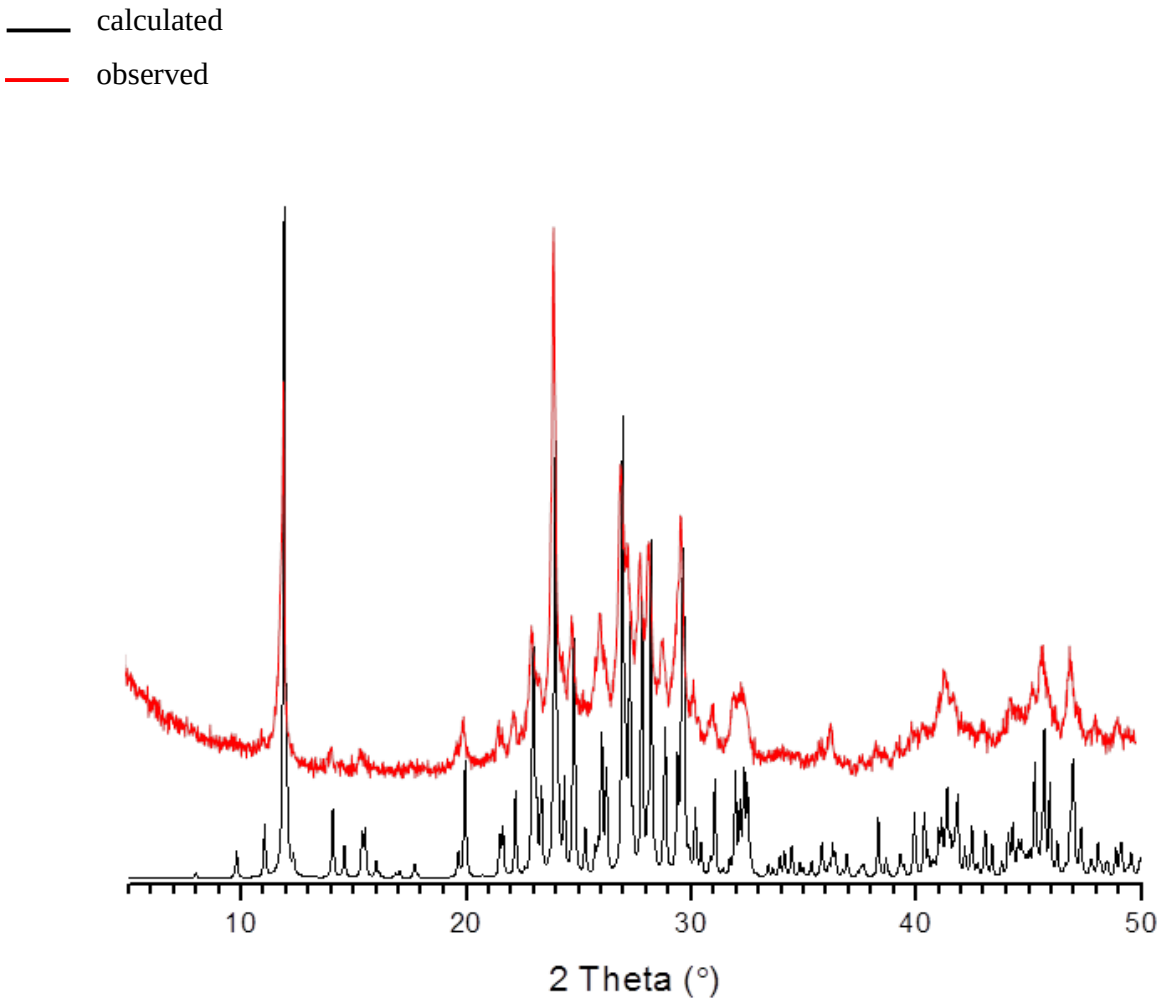
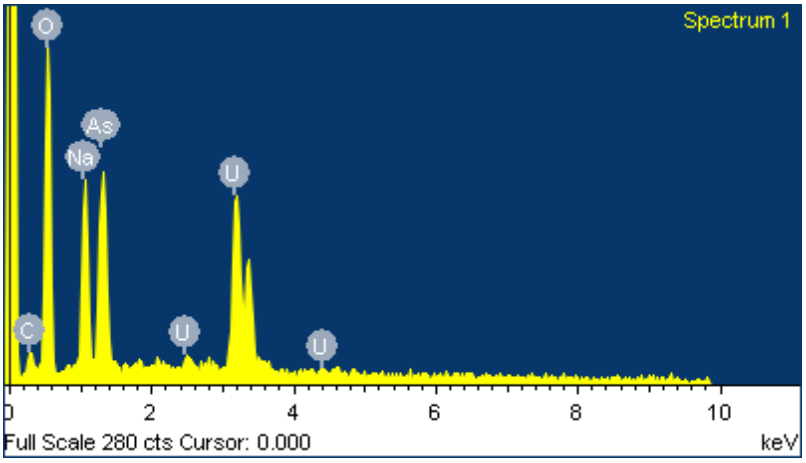
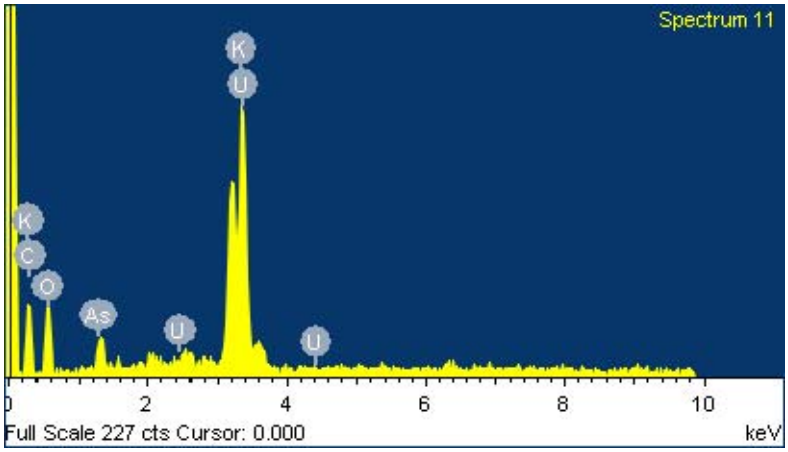


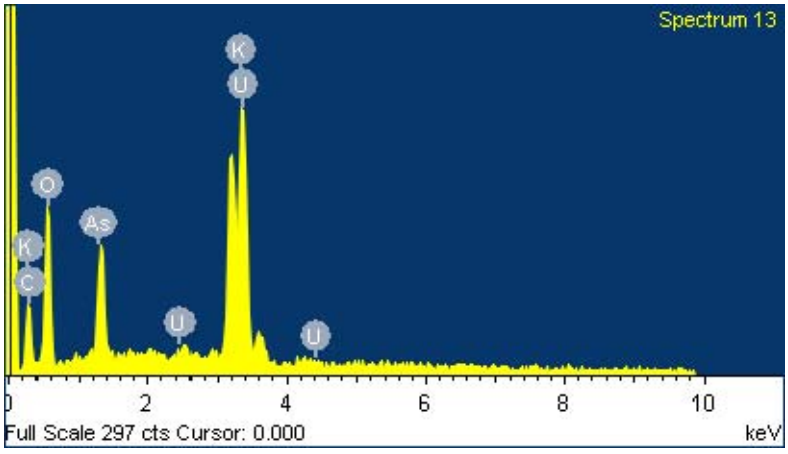
Figure S4



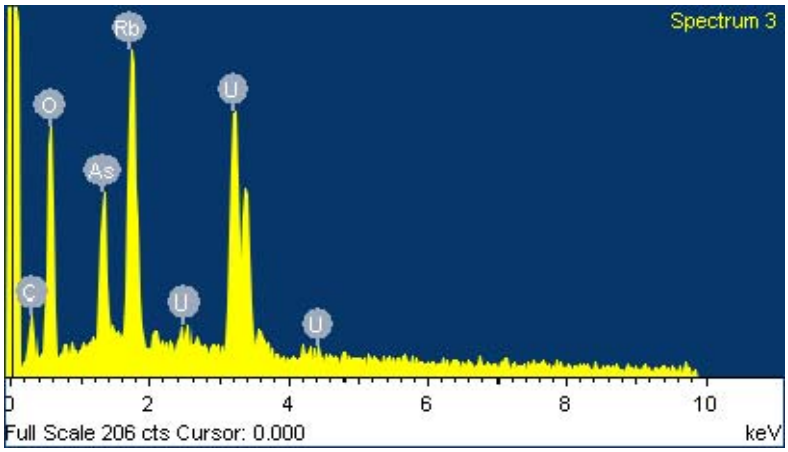
$Na_{14}[(UO_2)_5(AsO_4)_8]\cdot 2H_2O$ (compound **1**)



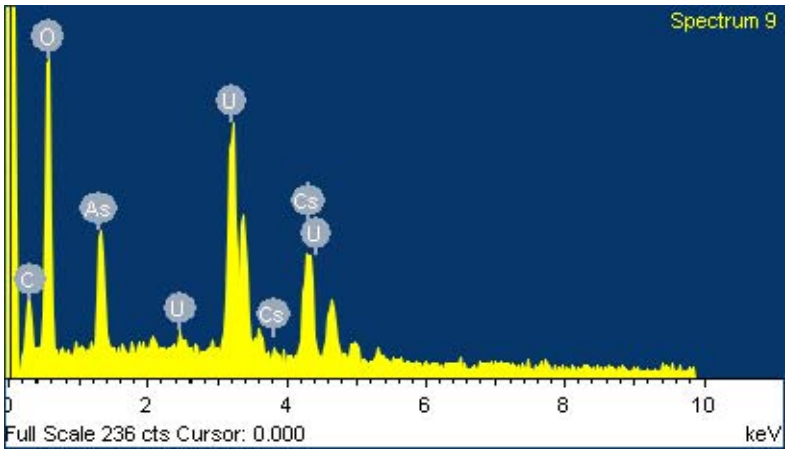
$K_6[(UO_2)_5O_5(AsO_4)_2]$ (compound **2a**)



$K_4[(UO_2)_3O_2(AsO_4)_2]$ (compound **2b**)



$Rb_4[(UO_2)_3O_2(AsO_4)_2]$ (compound **3**)



$Cs_6[(UO_2)_5O_2(AsO_4)_4]$ (compound **4**)

Figure S5

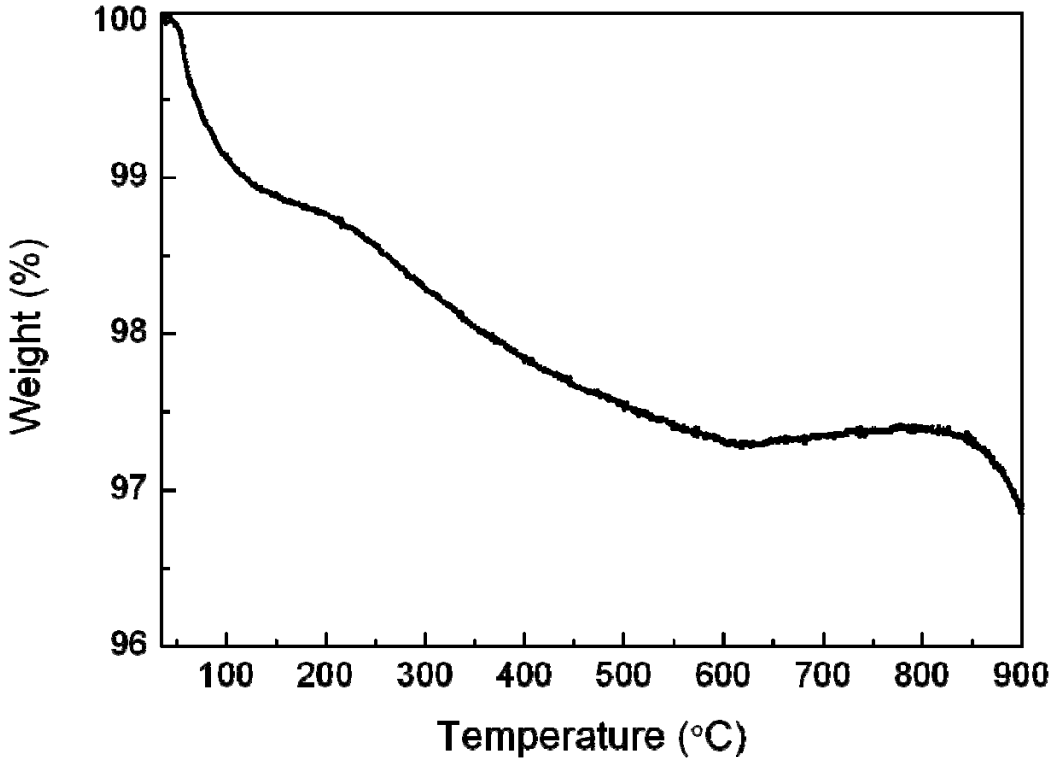

100
99
98
97
96
Weight (%)
100
200
300
400
500
600
700
800
900
Temperature (°C)

Figure S6

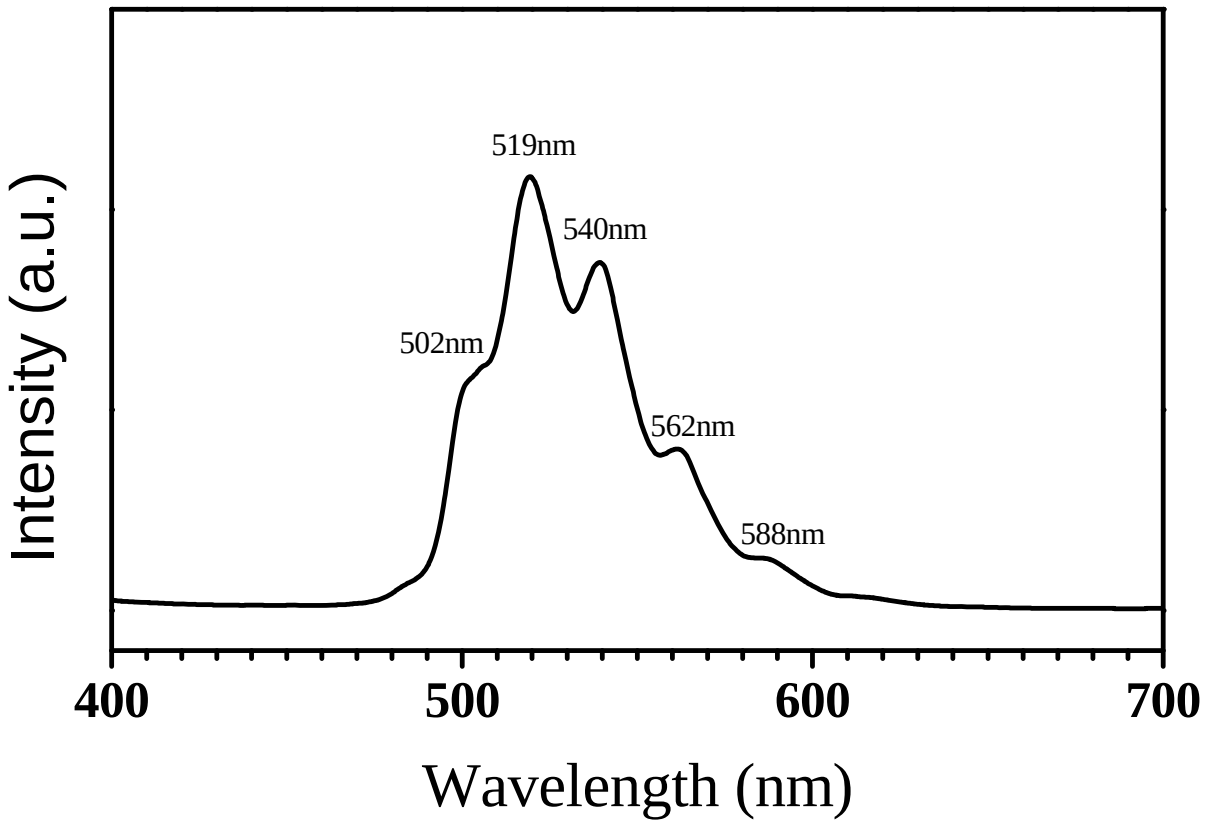

519nm
540nm
502nm
562nm
588nm
Intensity (a.u.)
400
500
600
700
Wavelength (nm)

Figure S7