

### UV-excited Single-component White Phosphor of $\text{Lu}_2\text{WO}_6$ with Broad-band Emission for pc-WLED

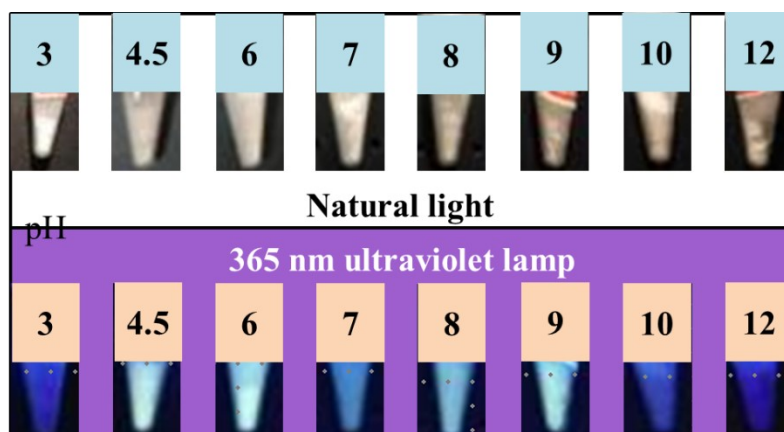


Figure S1. Photographs of all samples under the natural light and ultraviolet lamp

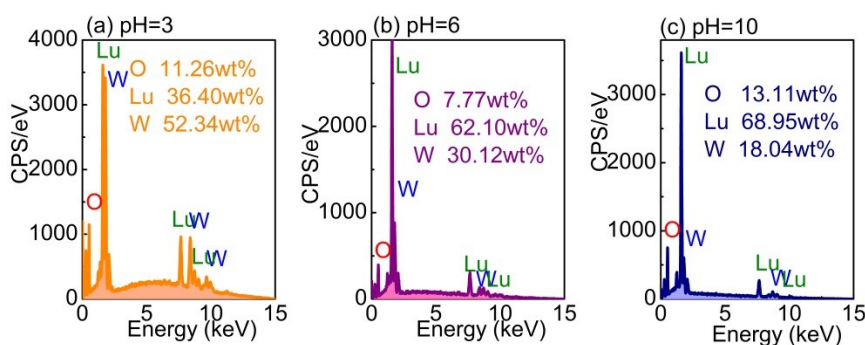


Figure S2 Element atomic percentage of three typical lutetium tungstate synthesized at pH value of (a) 3, (b) 6, and (c) 10.

Table S1 Detail Raman peak sites of eight samples synthesized at different pH environments

pH=3	4.5	6	7	8	9	10	12
359	197	135	194	195	137	103	104
828	253( $\text{La}_2\text{MoO}_6$ )	195	283	283	194	125	141
985	311	284	312	312	284	139	198
	368	312	370	370	312	194	246
	430	370	396	397	370	283	282
	484	396	435	435	396	311	320
	531	436	479	478	435	371	393
	625	478	530	501	478	437	474
	715	501	631	530	501	478	550
	752	529	711	636	530	546	628
	841	563	752	711	563	628	656
	949	638	842	752	633	703	701
		711		841	711	775	755
		752		900( $\text{La}_2\text{MoO}_6$ )	752	814	812
		841			841	841	
		898( $\text{La}_2\text{MoO}_6$ )			900( $\text{La}_2\text{MoO}_6$ )	915	

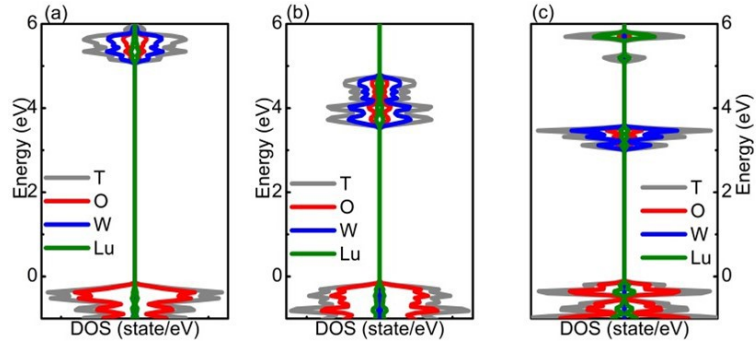


Figure S3. Density of states of (a)  $\text{Lu}_2\text{W}_3\text{O}_{12}$ , (b)  $\text{Lu}_2\text{WO}_6$ , and (c)  $\text{Lu}_6\text{WO}_{12}$ .

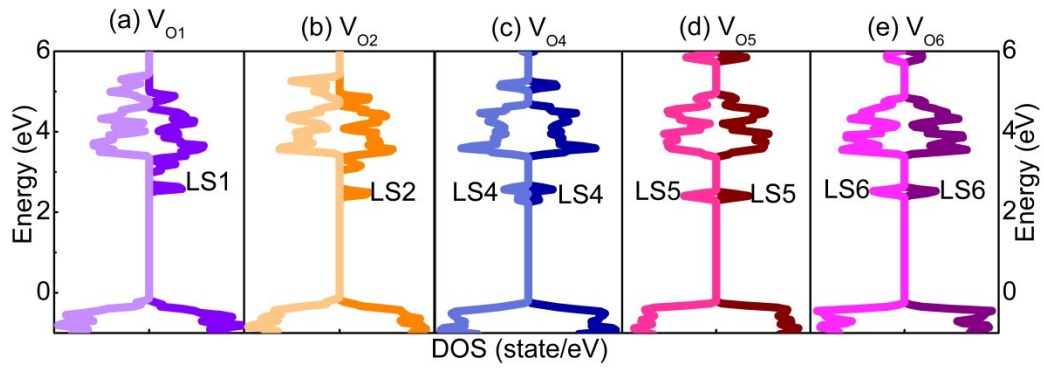


Figure S4. Density of state for (a)  $\text{V}_{01}$ , (b)  $\text{V}_{02}$ , (c)  $\text{V}_{04}$ , (d)  $\text{V}_{05}$ , and (e)  $\text{V}_{06}$  models