

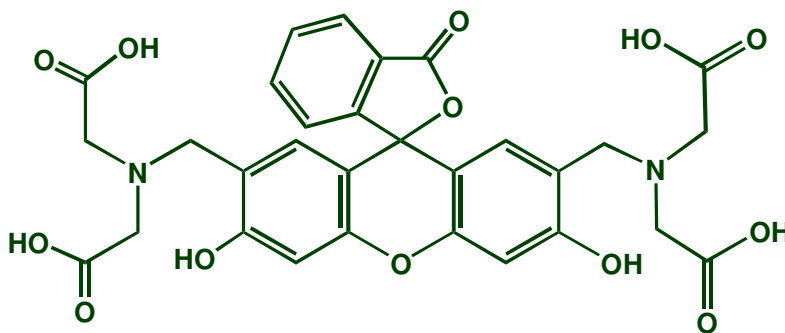
Fabrication of (Calcein/ZnS)_n Ordered Ultrathin Films Based on Layered Double Hydroxide and Its Ethanol Sensing Behavior

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Scheme S1. The molecular structure of Calcein.

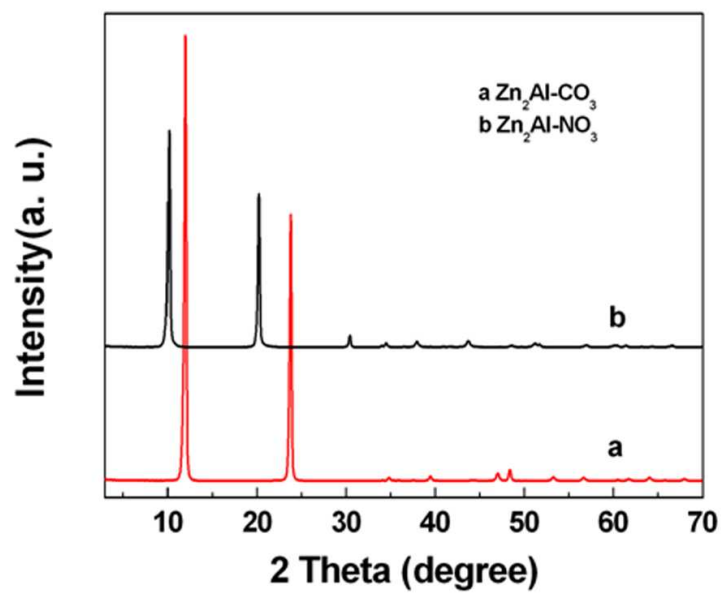


Figure S1. XRD patterns of (a) $\text{Zn}_2\text{Al-CO}_3$ and (b) $\text{Zn}_2\text{Al-NO}_3$

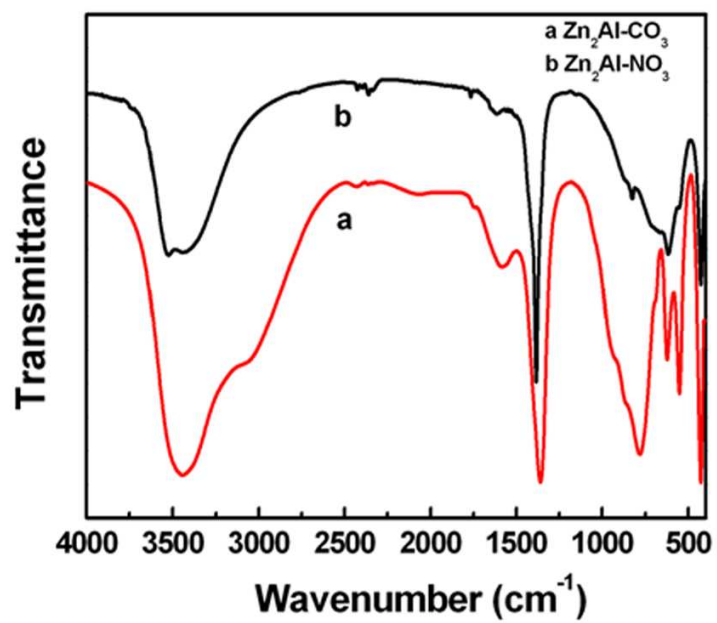


Figure S2. FT-IR spectra of (a) $\text{Zn}_2\text{Al-CO}_3$ and (b) $\text{Zn}_2\text{Al-NO}_3$.

Table S1. Ethanol sensing sensitivity compared with other references.

Entry	Ethanol (ppm)	Sensitivity (Ra/Rg)	T (°C)	Sensor type	References
1	100	8.9	90	(Calcein/ZnS) ₃₀ UTF	Our result
2	100	< 5	300	Undoped ZnO film	Sensors and Actuators B: Chemical , 2011, 152, 73–81
3	100	10	250	Pt/SnO ₂ film	Sensors and Actuators B: Chemical , 2004, 99, 201–206
4	100	15	320	Pure ZnO film	Materials Science and Engineering: B , 2007, 137, 53–58
5	200	4.69	300	SnO ₂ –ZnO thin film	Sensors and Actuators B: Chemical , 2007, 123, 318–324
6	500	7~8	400	(CuO)/multiwall carbon nanotube thin film	Sensors and Actuators B , 2011, 158, 229–234
7	30,000	1.193	—	CNTs/NaClO ₄ /Ppy	Sensors and Actuators B: Chemical , 2008, 134, 213–218
8	1000	21.6	—	xTiO ₂ (1-x)WO ₃ film	Sensors and Actuators B: Chemical , 2003, 94, 99–102
9	1000	22	400	CdO film	Materials Letters , 2011, 65, 1488–1491
10	1000	16	90	(Calcein/ZnS) ₃₀ UTF	Our result
11	200	15	250	SnO ₂ thick film	Sensors and Actuators B: Chemical , 2009, 143 , 226–232
12	500	1075	300	SnO ₂ thin film (1 μm thickness)	Chemistry of Materials , 2005, 17, 3997–4000
13	500	80	300	Mo doped SnO ₂ film	Sensors and Actuators B: Chemical , 2002, 81, 165–169
14	1000	100	300	SnO ₂ film (60 nm thickness)	Sensors and Actuators B: Chemical , 1998, 50 , 227–233
15	2000	95	350	SnO ₂ film	Sensors and Actuators B: Chemical , 2001, 77, 90–94