



兰州大学
LANZHOU UNIVERSITY

Supplementary Information

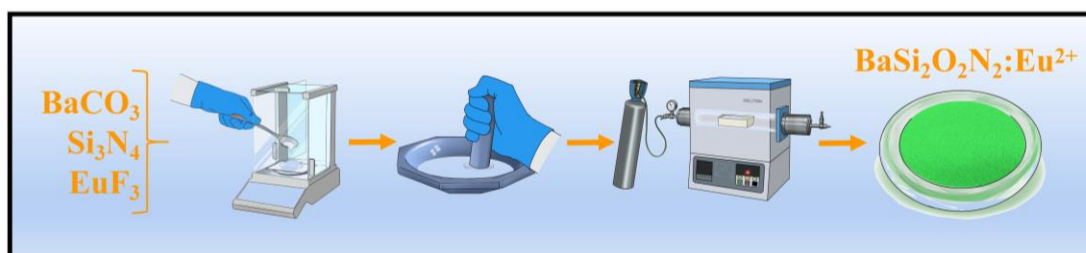
A stress-charged non-Newtonian-fluid persistent luminescent material

*Jinyu Zhou, Wenxiang Wang, Shanwen Wang, Jiachi Zhang *, Jia Wang,
Yan Gu, Xianfeng Jin, Birong Tian and Yuhua Wang **

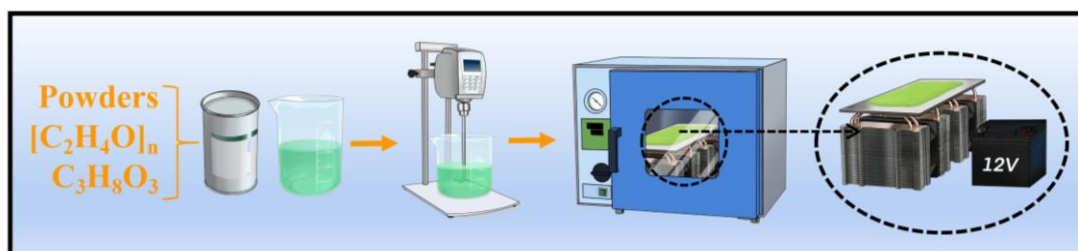
National & Local Joint Engineering Laboratory for Optical
Conversion Materials and Technology
Lanzhou University, Lanzhou 730000, P. R. China

Content

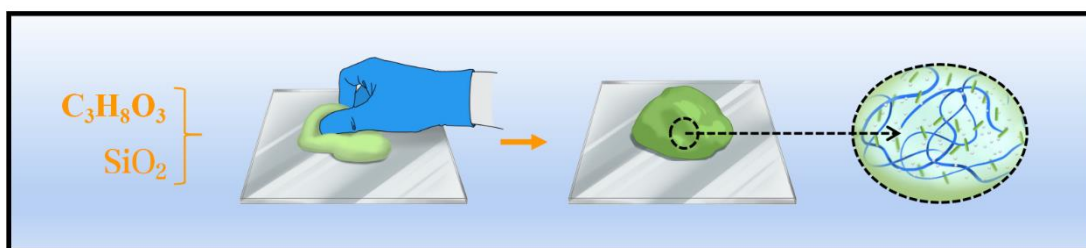
Supplementary Fig. 1.	Synthesis process of phosphor powders	1
Supplementary Fig. 2.	Synthesis process of gel material.....	2
Supplementary Fig. 3.	Improved process of gel material	3
Supplementary Fig. 4.	Self-made friction machine.....	4
Supplementary Fig. 5.	Phosphor powders.....	5
Supplementary Fig. 6.	Rietveld structure refinements	6
Supplementary Fig. 7.	SEM image.....	7
Supplementary Fig. 8.	HRTEM image.....	8
Supplementary Fig. 9.	EDX spectrum.....	9
Supplementary Fig. 10.	XPS spectrum.....	10
Supplementary Fig. 11.	Elemental distribution maps	11
Supplementary Fig. 12.	SEM image.....	12
Supplementary Fig. 13.	Microscopic image.....	13
Supplementary Fig. 14.	Thermoluminescence	14
Supplementary Fig. 15.	PersL photo	15
Supplementary Fig. 16.	Cathodoluminescence spectra.....	16
Supplementary Fig. 17.	Schematic diagram 1.....	17
Supplementary Fig. 18.	Density of states.....	19
Supplementary Fig. 19.	Electric hysteresis loops.....	18
Supplementary Fig. 20.	Schematic diagram 2.....	20
Supplementary Fig. 21.	Water resistance 1	19
Supplementary Fig. 22.	Water resistance 2	20
Supplementary Fig. 23.	Cell proliferation.....	21
Supplementary Fig. 24.	Positive control	22



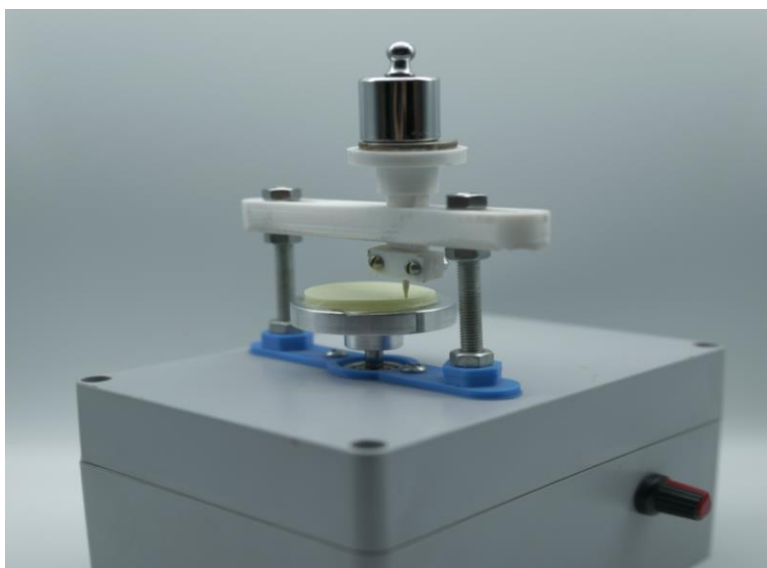
Supplementary Fig. 1. Synthesis process of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ phosphor powders.



Supplementary Fig. 2. Synthesis process of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}/\text{PVA}$ gel material.



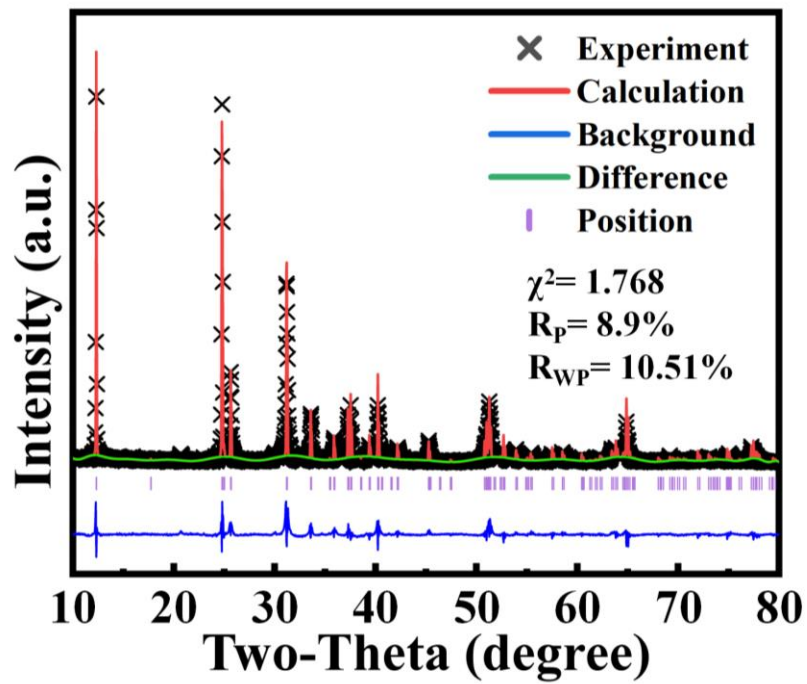
Supplementary Fig. 3. Improved process of gel material.



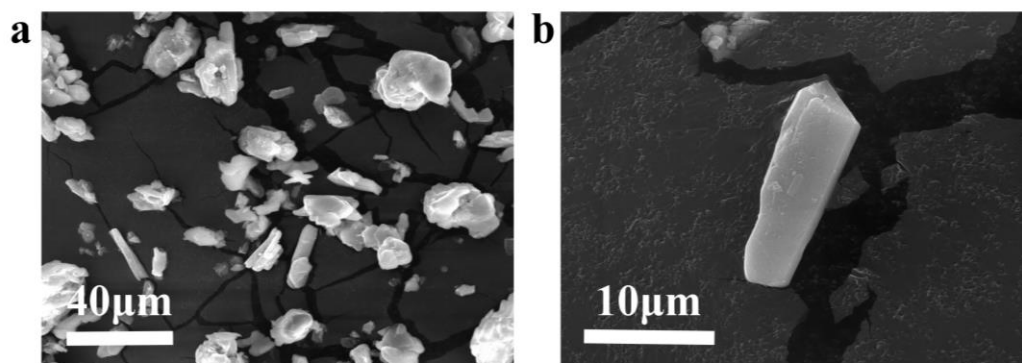
Supplementary Fig. 4. Self-made friction machine.



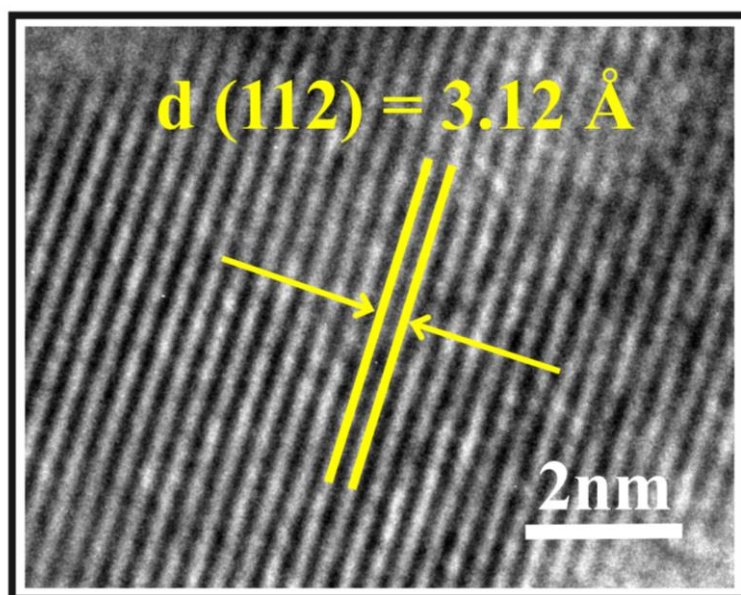
Supplementary Fig. 5. Photo of BaSi₂O₂N₂:Eu²⁺ powders.



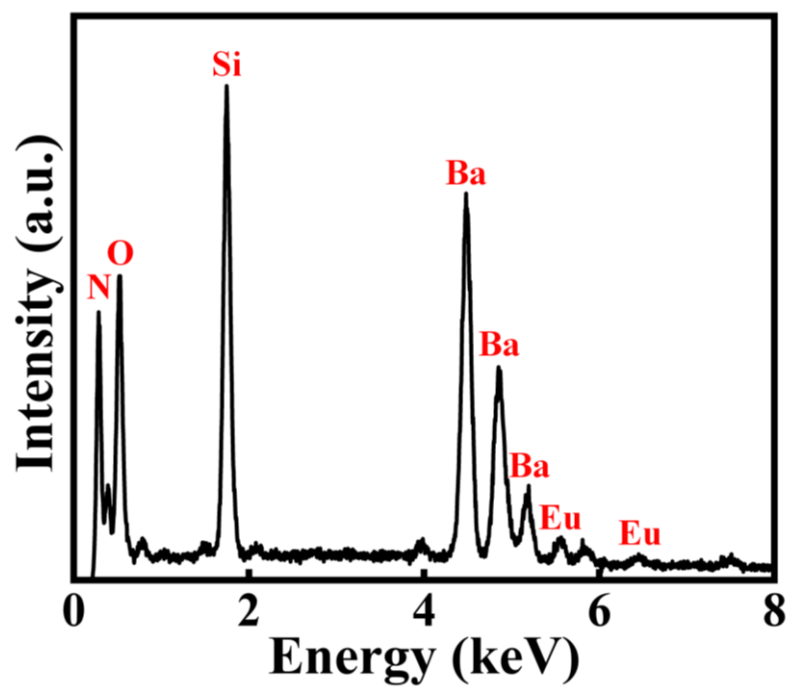
Supplementary Fig. 6. Rietveld structure refinements of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ material.



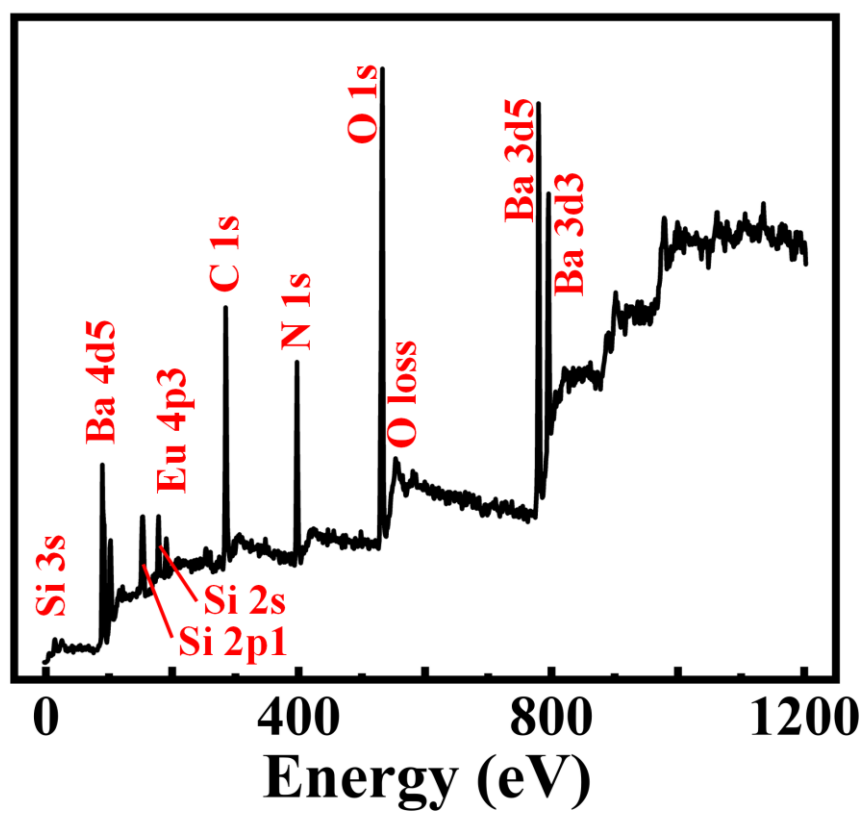
Supplementary Fig. 7. SEM images of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ powders.



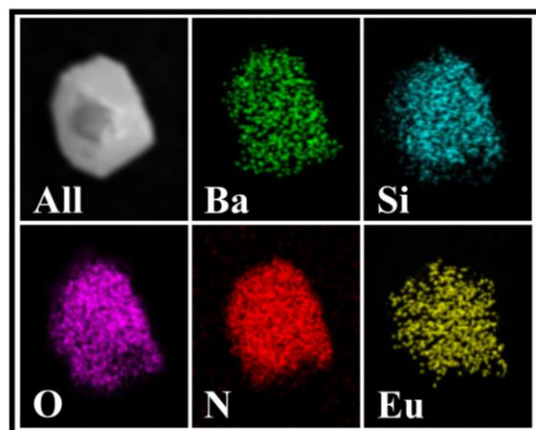
Supplementary Fig. 8. HRTEM image of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ material.



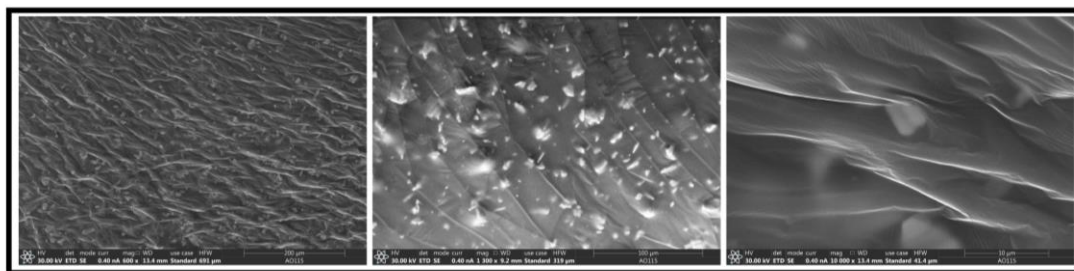
Supplementary Fig. 9. EDX spectrum of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ material.



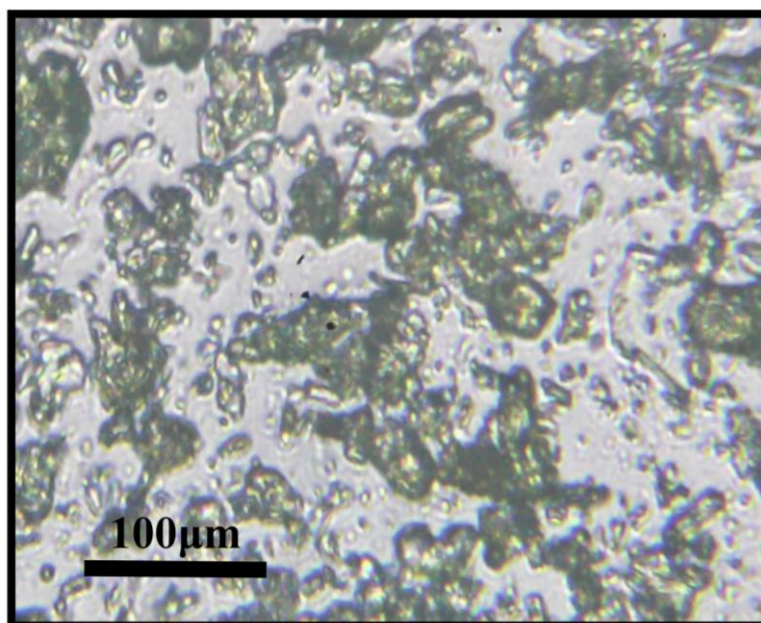
Supplementary Fig. 10. XPS spectrum of $\text{BaSi}_2\text{O}_2\text{N}_2:\text{Eu}^{2+}$ material.



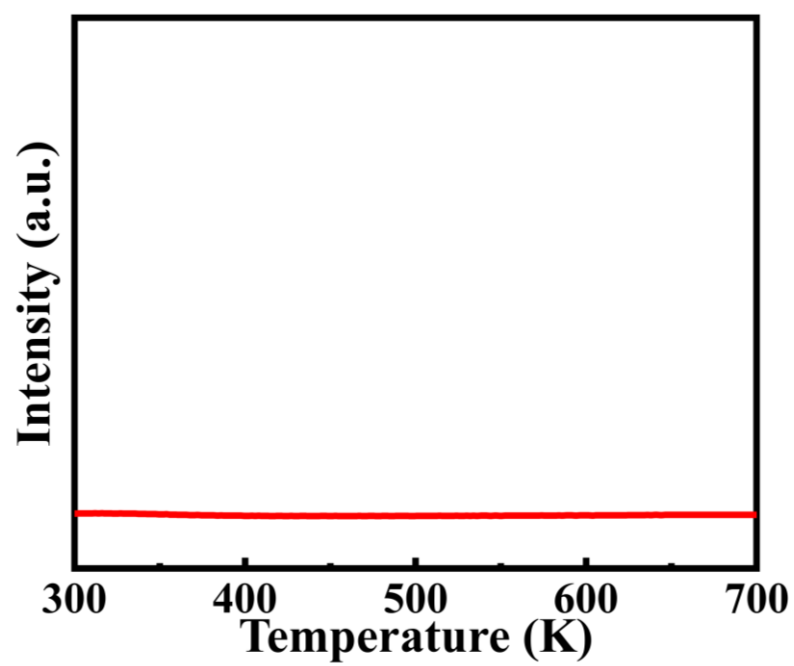
Supplementary Fig. 11. Elemental distribution maps of BaSi₂O₂N₂:Eu²⁺ material.



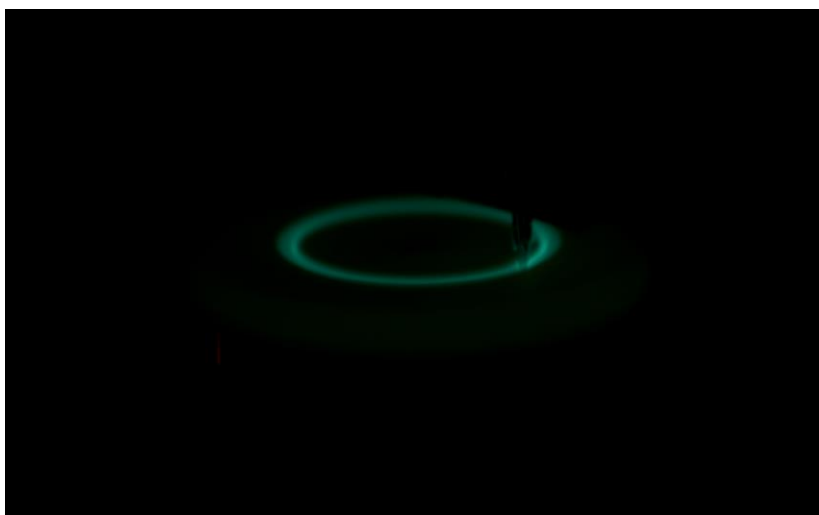
Supplementary Fig. 12. SEM images of BaSi₂O₂N₂:Eu²⁺/PVA gel material.



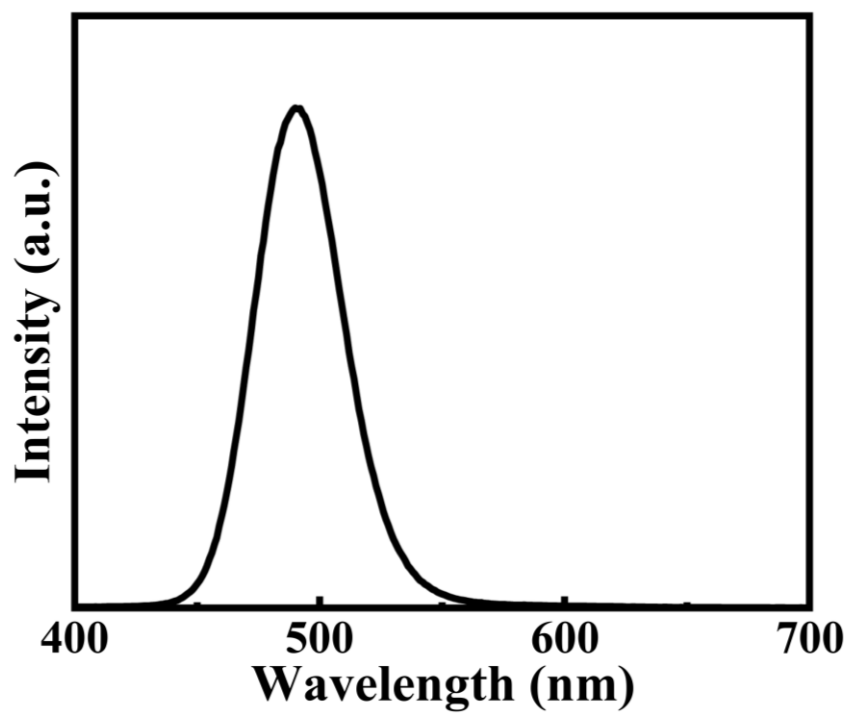
Supplementary Fig. 13. Microscopic image of BaSi₂O₂N₂:Eu²⁺/PVA gel material.



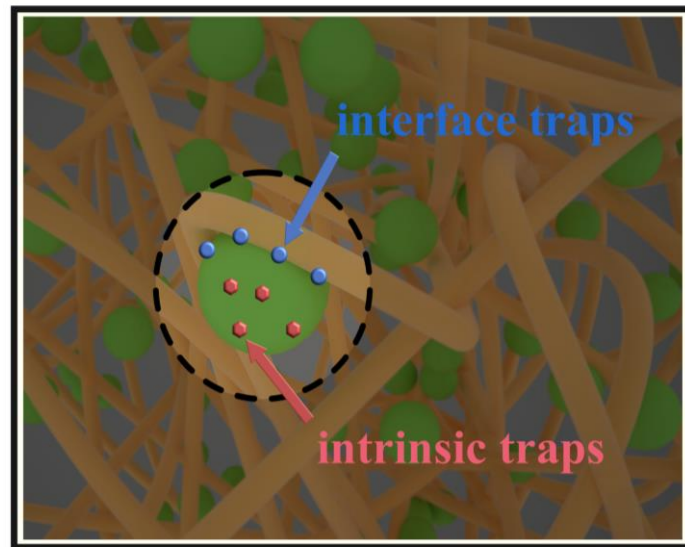
Supplementary Fig. 14. Thermoluminescence of gel material after sintering at 200 °C.



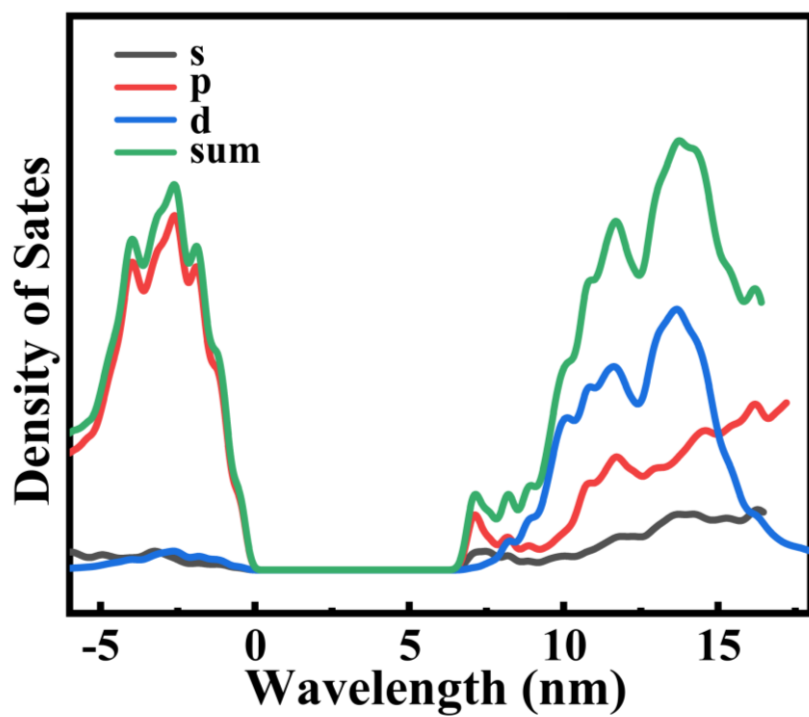
Supplementary Fig. 15. PersL photo of gel material under scratching.



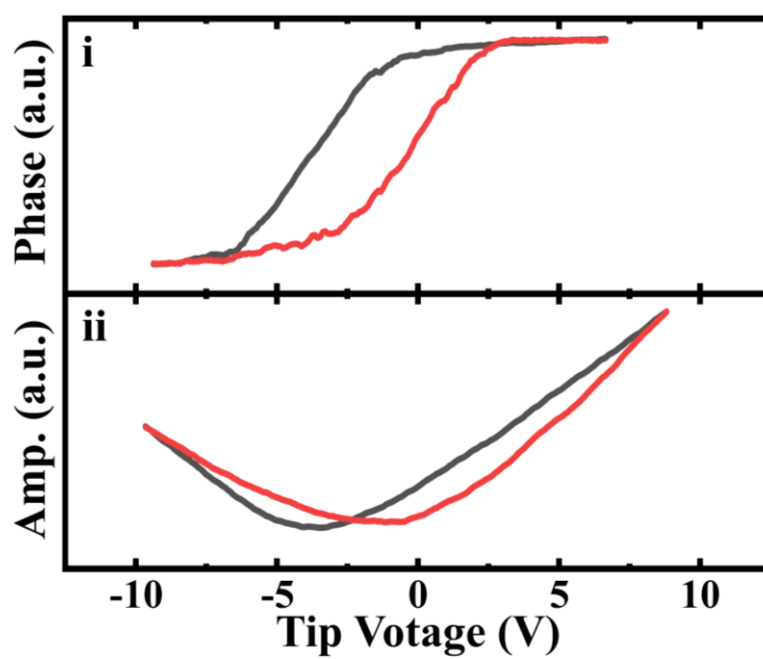
Supplementary Fig. 16. Cathodoluminescence spectra of BaSi₂O₂N₂:Eu²⁺.



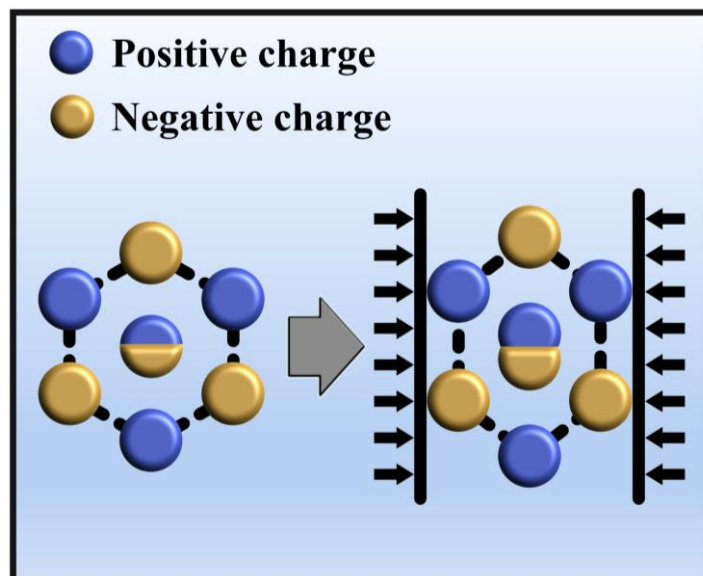
Supplementary Fig. 17. Schematic diagram of the interface traps.



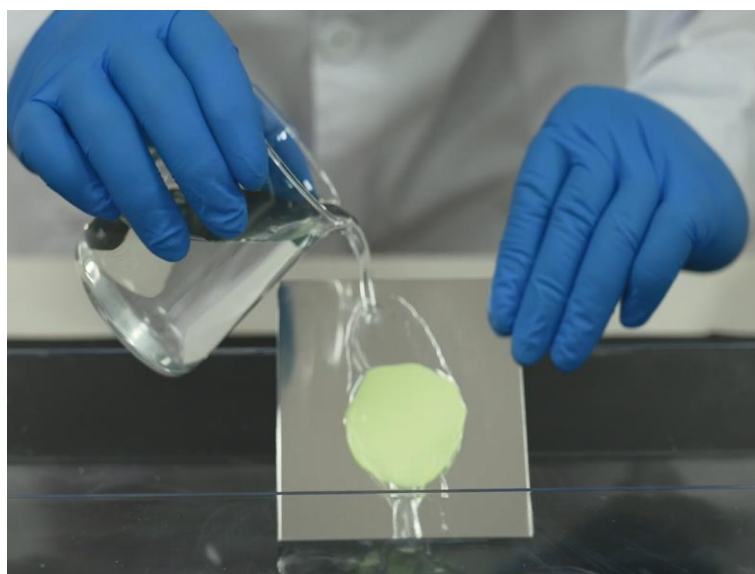
Supplementary Fig. 18. Density of states of BaSi₂O₂N₂.



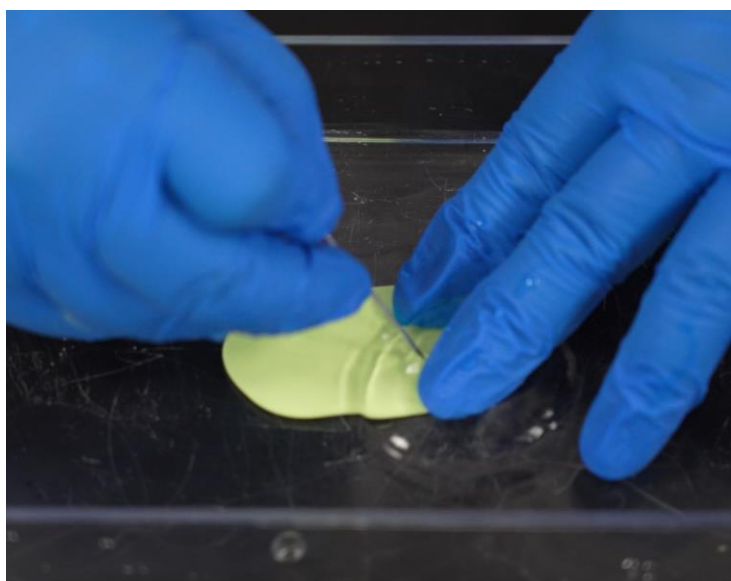
Supplementary Fig. 19. Electric hysteresis loops of ZnS.



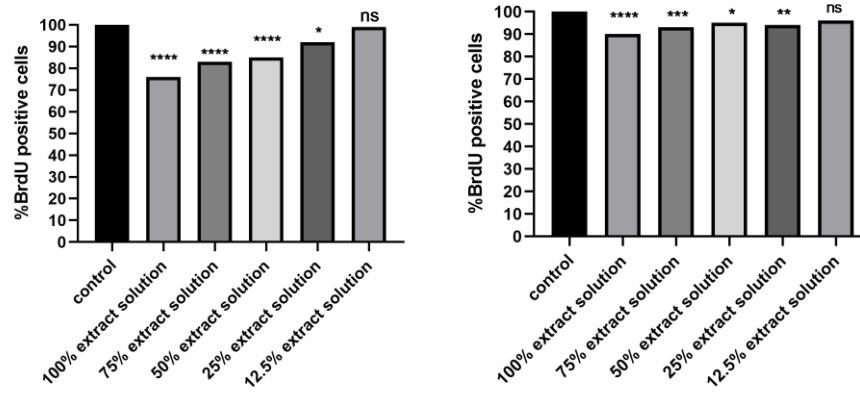
Supplementary Fig. 20. Schematic diagram of the piezoelectric effect.



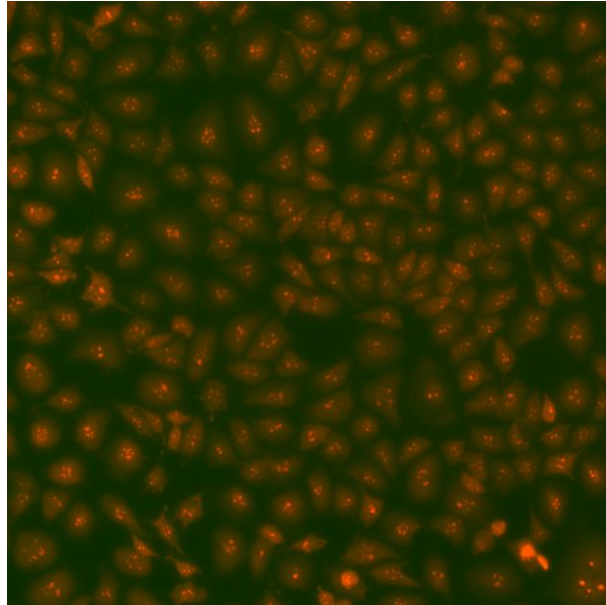
Supplementary Fig. 21. Photo of gel material after pouring water on the surface.



Supplementary Fig. 22. Photo of gel material after being immersed in water.



Supplementary Fig. 23. Cell proliferation experiment of gel material (Experimental method: BrdU labeling method, Experimental cell: MC3T3-E1, L929).



Supplementary Fig. 24. Positive control of cell staining result based on Live/Death™ cell imaging kit.