

## Supplementary Material

### Quantum Confinement Dominates Band Gaps, while Defects Lead the Photoluminescence in Silicon Nanowires

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## 1. SEM image of silicon nanowires (SiNWs) in cross sectional view

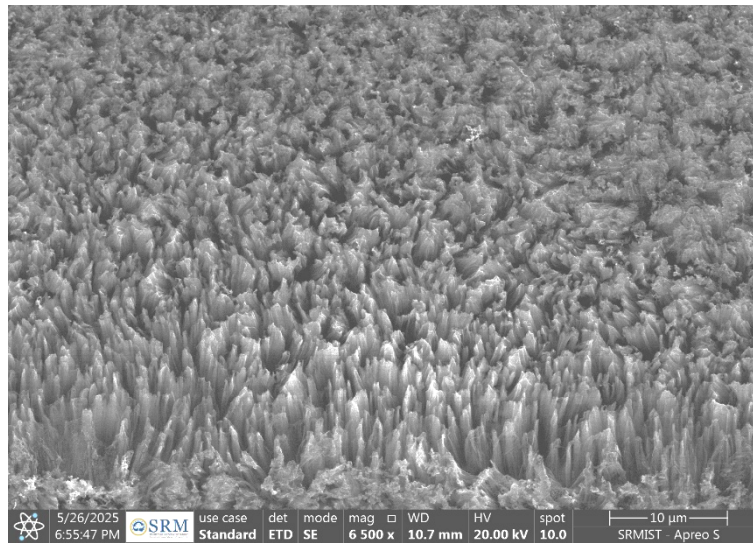


Figure 1. SEM image of cross- sectional view of silicon nanowires (SiNWs) for 30 minutes etching.

## 2. Examples of higher Urbach energies.

Material	Urbach energy ( $E_0$ )	References
Zinc oxide (ZnO)	400 to 1000 meV	1
Tin oxide ( $\text{SnO}_2$ )	1,666 meV, 945 meV, and 12,210 meV	2
Erbium oxide ( $\text{Er}_2\text{O}_3$ )	0.722 to 1.083 eV	3
Copper-doped hematite (Cu- $\text{Fe}_2\text{O}_3$ )	1100 meV	4
mercuric-sodium-lead-borate glasses (55-x) $\text{B}_2\text{O}_3 \cdot 10\text{SrF}_2 \cdot 25\text{PbO} \cdot 10\text{Na}_2\text{O} \cdot x\text{HgO}$	0.74 to 1.54 eV	5
Poly (3, 4-ethylenedioxythiophene)	2197 to 2262 meV	6
Cadmium oxide (CdO)	715 to 826 meV	7
Phenylene thiophene based polyazomethines (PTPI)	1670 meV	8

### References

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