

Supplementary Materials:

Electric Field-Driven Air Purification Filter for High Efficiency Removal of PM_{2.5} and SO₂: Local Electric Field Induction and External Electric Field Enhancement

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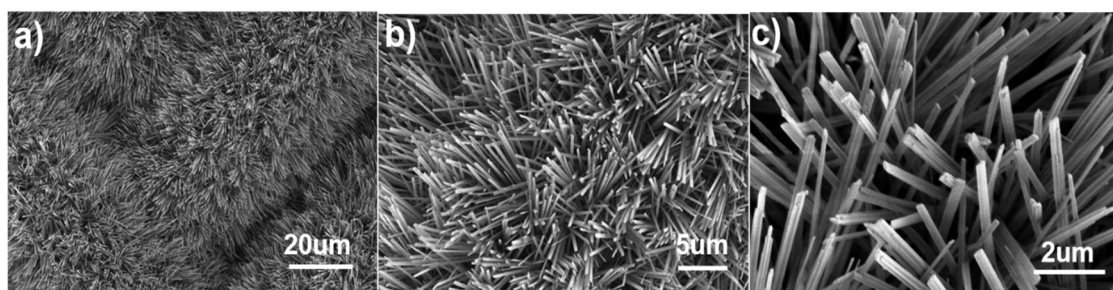


Figure S1. a)-c) Different magnification SEM images of Cu(OH)₂ nanowires grown on 400 mesh.

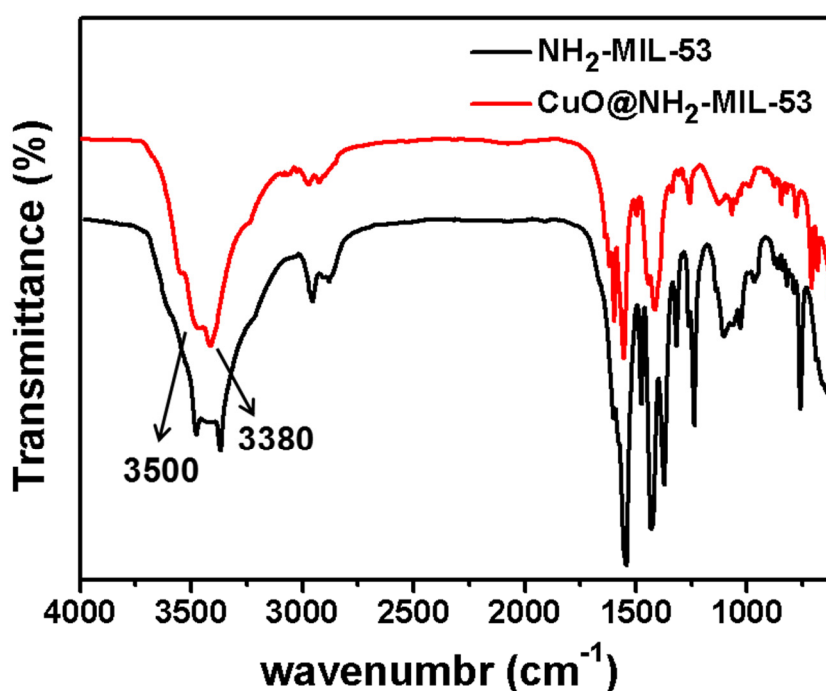


Figure S2. IR spectrum of NH₂-MIL-53(Al) and CuO@NH₂-MIL-53(Al). The two sharp bands at 3380 cm⁻¹ and 3500 cm⁻¹ are due to the symmetric and asymmetric N-H vibrations respectively.

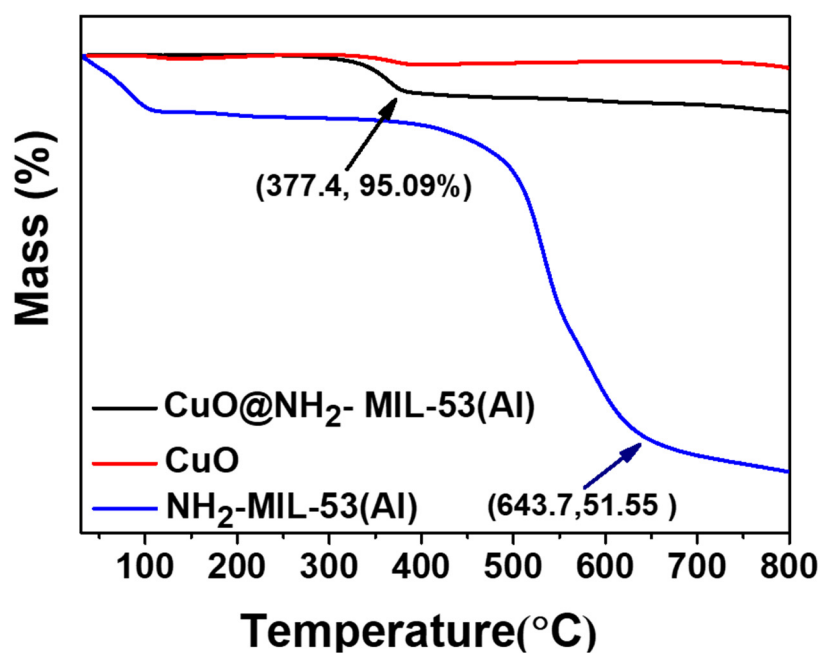


Figure S3. TG curves of the as-prepared NH₂-MIL-53(Al), CuO and CuO@ NH₂-MIL-53(Al) NWAs/CM.

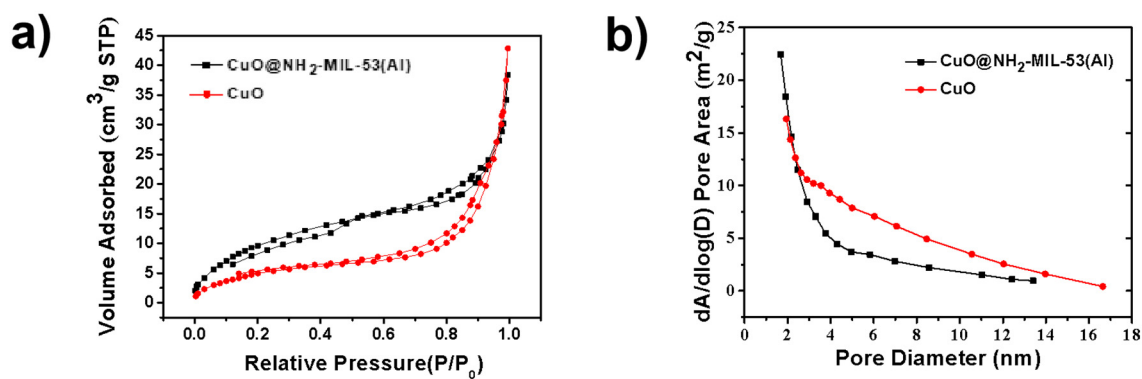


Figure S4. (a) Nitrogen adsorption-desorption isotherms and (b) BJH pore diameter distribution curves of CuO and CuO@NH₂-MIL-53(Al).

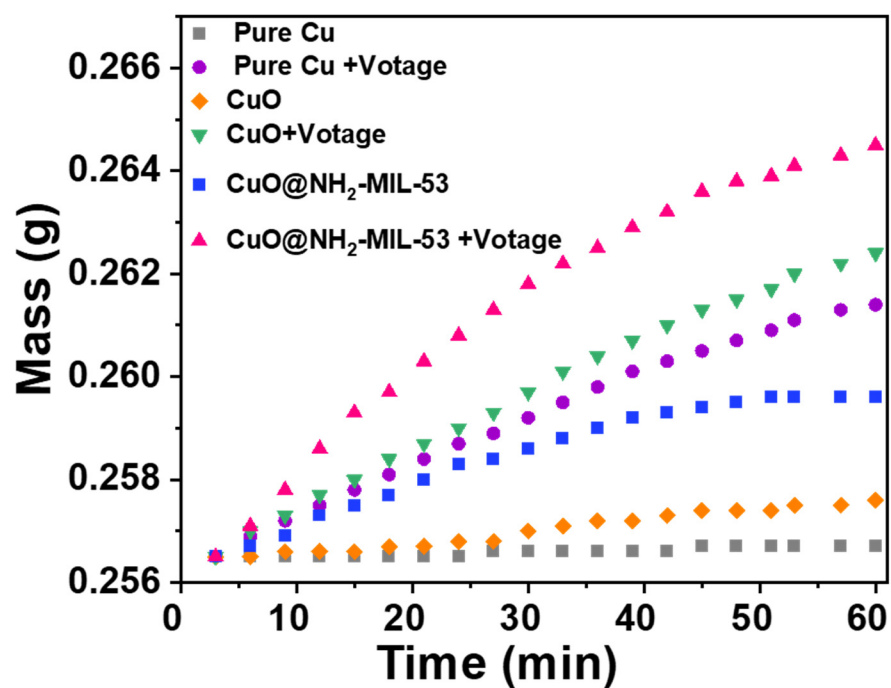


Figure S5. The areal mass change of the filters after PM_{2.5} capture with different adsorption time of pure Cu mesh, CuO filter and CuO@NH₂-MIL-53(Al) filter under an applied electric field and without electric field.

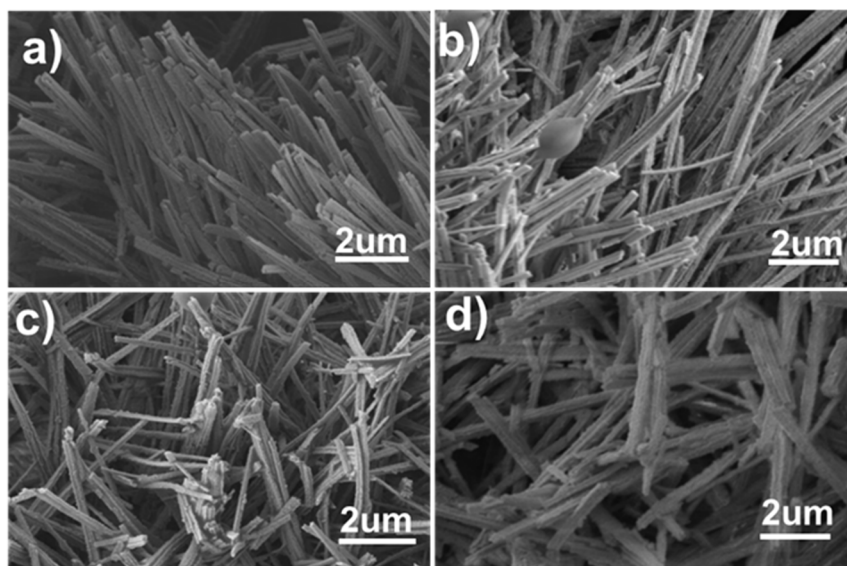


Figure S6. SEM images of the CuO@NH₂-MIL-53(Al) filter with different time of PM_{2.5} capture at zero electric field. a) 0min, b) 10 min, c) 30min, d) 60 min.

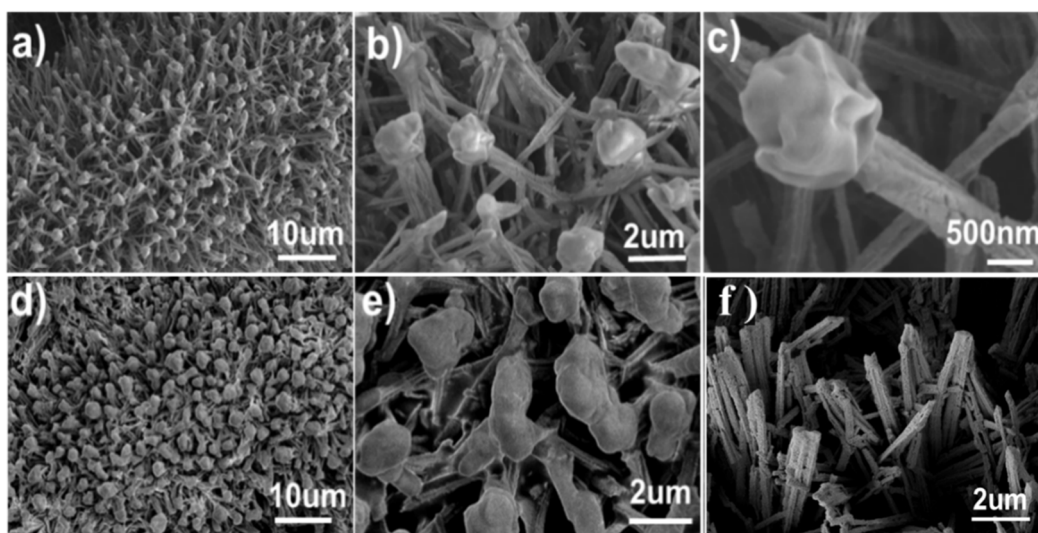


Figure S7. SEM images of CuO@NH₂-MIL-53(Al) filter with different time of PM_{2.5} capture under an applied electric field. (a-c) 30 min, (d-e) 60 min, and (f) after ethylene glycol washing.

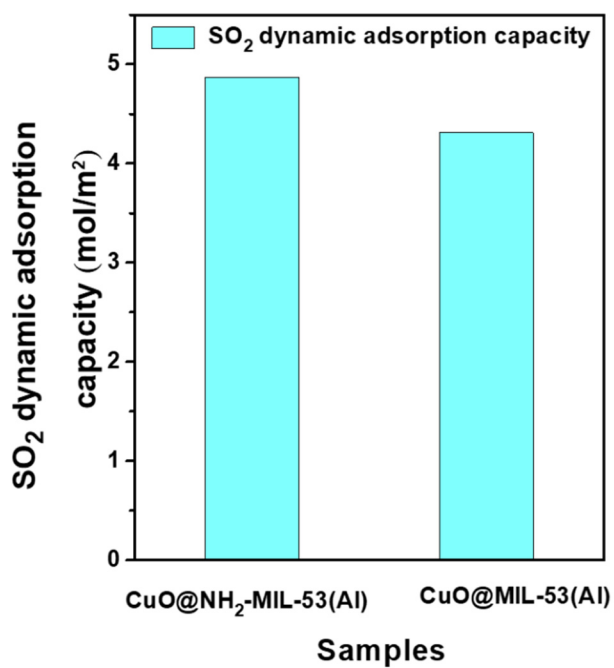


Figure S8. SO₂ adsorption performances of the CuO@NH₂-MIL-53(Al) and CuO@MIL-53(Al) filters.