*SUPPORTING INFORMATION*

# Nanoporous $WO_3$ Gasochromic Films for Gas Sensing

Shengqing Xue[1], Guohua Gao[1]*, Zenghai, Zhang[2]*, Xiaodi Jiang[1], Jun Shen[1], Guangming Wu[1]*, Hanyu Dai[1], Yuyang Xu[1], Yao Xiao[1]

[1] Shanghai Key Laboratory of Special Artificial Microstructure Materials and Technology, School of Physics Science and Engineering, Tongji University, Shanghai, 200092, China.

[2] School of Materials Science and Engineering, Tongji University, Shanghai, 200092, China.

E-mail: gao@tongji.edu.cn; 1210590@tongji.edu.cn; wugm@tongji.edu.cn

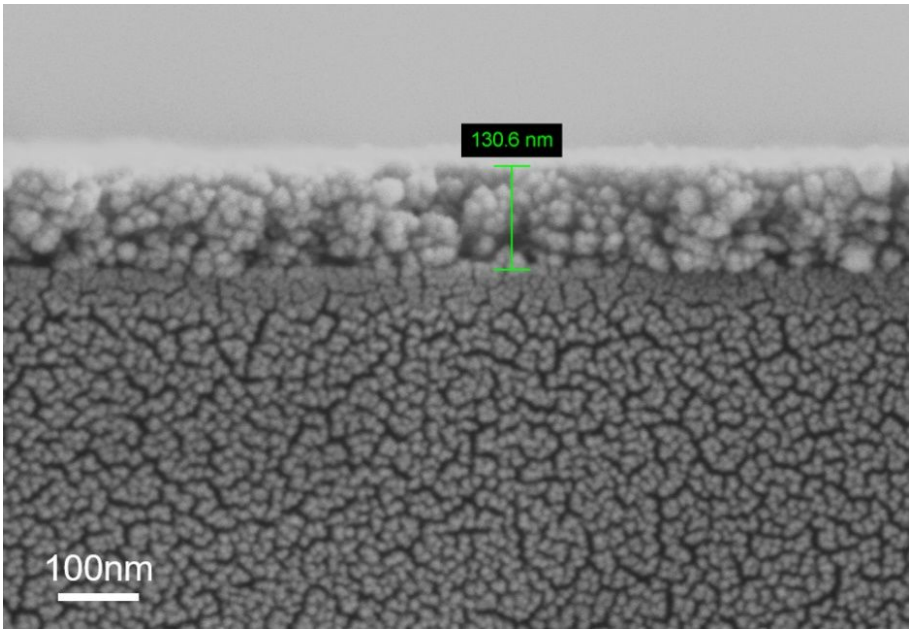

Figure S1 SEM image in cross-section of the m$WO_3$-0 film.

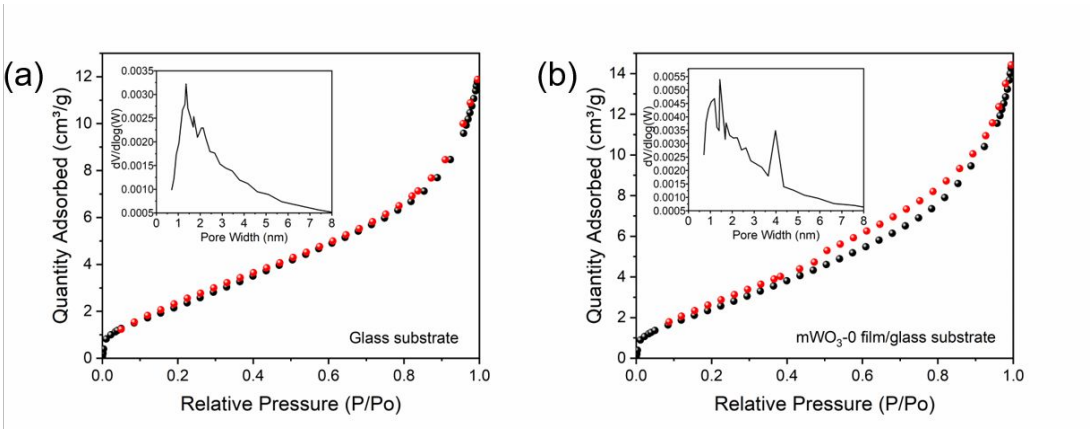


Figure S2 $N_2$ absorption/desorption isotherms and pore size distributions of glass (a) and $mWO_3$-0 film (b).

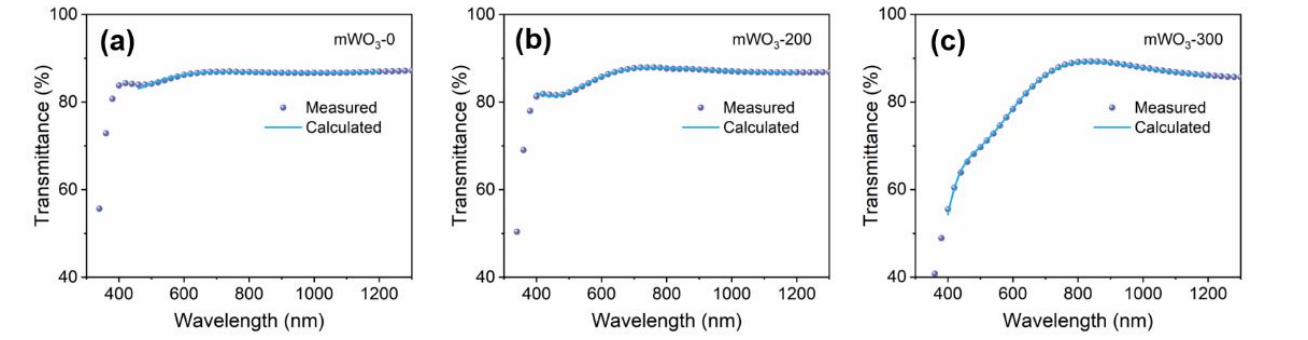


Figure S3. The graph of the measurement and calculation diagram of $mWO_3$-0 film (a), $mWO_3$-200 film (b) and $mWO_3$-300 film (c).

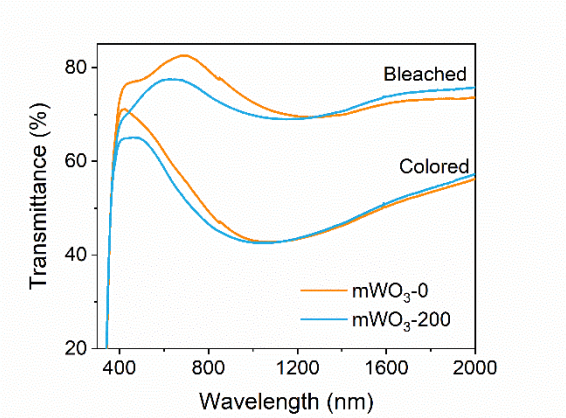


Figure S4. Transmittance spectra of $mWO_3$-0 film and $mWO_3$-200 film at colored state and bleached state.

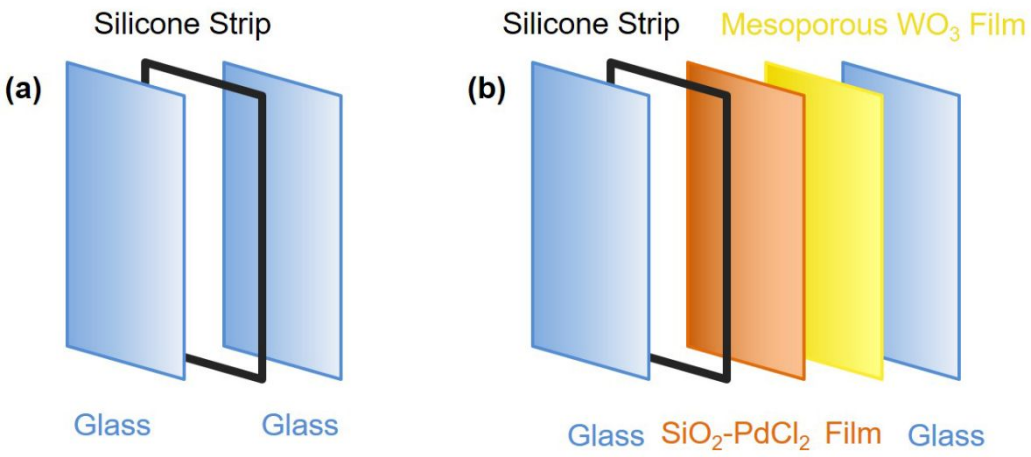


Figure S5. Diagrammatic drawings of gasochromic window (a) and double glazing window (b).

Table.S1 The specific surface area of different P123 doping amount and the specific surface area of pure glass.

| Sample | Surface Area($m^2/g$) |
|---|---|
| P123: PTA = 1:10 | 9.75 |
| P123: PTA = 1:20 | 13.62 |
| P123: PTA = 1:30 | 13.01 |
| P123: PTA = 1:40 | 9.80 |
| Glass substrate | 8.90 |