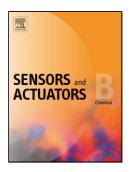
### Accepted Manuscript

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### ACCEPTED MANUSCRIPT

# A multifunctional ZnO thin film based devises for photoelectrocatalytic degradation of terephthalic acid and CO<sub>2</sub> gas sensing applications

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#### **Research Highlights**

- Hexagonal ZnO thin films are prepared by simple spray pyrolysis approach.
- Photoelectrocatalytic degradation of terephthalic acid is achieved up to 91 %.
- ZnO thin films are exposed to  $CO_2$  gas with a concentration of 250 450 ppm.
- ZnO electrode shows an excellent CO<sub>2</sub> gas sensing property with good response and recovery time periods.

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