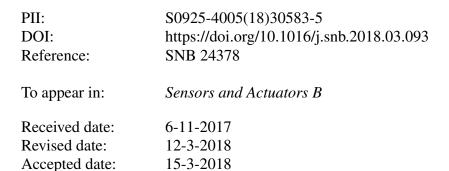
### Accepted Manuscript

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## ACCEPTED MANUSCRIPT

## Thickness Effects of Aerosol Deposited Hygroscopic Films on Ultra-Sensitive Humidity Sensors

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#### Highlights

- Aerosol deposition can be used to prepare ultra-sensitive ceramic humidity sensors.
- Film-based sensors were prepared using a shock-loading solidification mechanism of aerosol deposition.
- Their sensitivity depends on the hydrophilicity, pore volume, and open-pore ratio.
- The thickness of the film regularly affects the humidity-sensing properties.

#### Abstract

Hygroscopic film that has a super mesoporous structure exhibits high sensitivity and fast response/recovery in humidity sensing applications. Aerosol deposition (AD) via a shock-loading-solidification preparation mechanism, which is an unexplored potential hygroscopic film preparation technique, can produce a porous microstructure, and the AD hammering effect creates various interior and surface microstructures in differentthickness films. The objective of our study was to verify the feasibility of using AD as a humidity-sensing film preparation technique, and to investigate the thickness effects of the film on its microstructure and Download English Version:

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