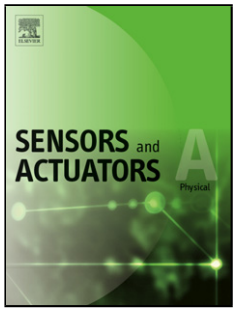

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PII: S0924-4247(18)30164-X
DOI: https://doi.org/10.1016/j.sna.2018.06.060
Reference: SNA 10865

To appear in: *Sensors and Actuators A*

Received date: 26-1-2018
Revised date: 30-6-2018
Accepted date: 30-6-2018

Please cite this article as: PARK C-Ho, Van DUONG Q, MOON Y-Ju, HA K, CHOI ST, Enhanced Thermo-Electro-Mechanical Characteristics of Purified P(VDF-TrFE) Films for Ultrasonic Transducers, *Sensors and Actuators: A. Physical* (2018), https://doi.org/10.1016/j.sna.2018.06.060

Enhanced Thermo-Electro-Mechanical Characteristics of Purified P(VDF-TrFE) Films for Ultrasonic Transducers

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Highlights

- Highly crystalline P(VDF-TrFE) films were fabricated by introducing purification and uniaxial stretching processes.
- The stretching and purification processes increase the crystallinity of the P(VDF-TrFE) films by about 16.2% and 2.2%, respectively.
- The stretching process greatly increases the thermal stability of the P(VDF-TrFE) films so that the purified and stretched films exhibits a variation within 6% in the piezoelectric constant (d_{33}) during the storage test at 70 °C for 96 h.
- UTs were also fabricated with the purified P(VDF-TrFE) films.
- The sensitivity and bandwidth of the UTs with the purified and stretched film has a 4.5 dB increase and 24.3% decrease, respectively, compared to UTs fabricated with the purified film without stretching.