

Accepted Manuscript

Research paper

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PII: S0009-2614(18)30393-2

DOI: <https://doi.org/10.1016/j.cplett.2018.05.028>

Reference: CPLETT 35644

To appear in: *Chemical Physics Letters*

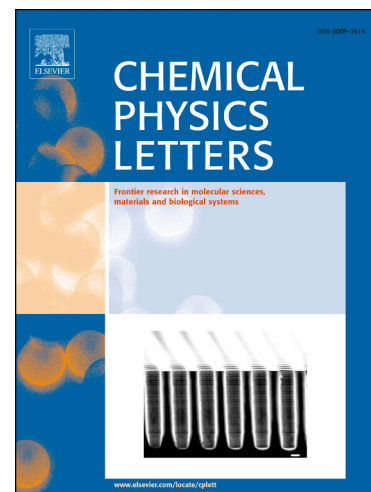
Received Date: 19 April 2018

Revised Date: 8 May 2018

Accepted Date: 11 May 2018

Please cite this article as: G. Namgung, Q. Thanh Hoai Ta, J-S. Noh, Stretchable Hydrogen Sensors Employing Palladium Nanosheets Transferred onto An Elastomeric Substrate, *Chemical Physics Letters* (2018), doi: <https://doi.org/10.1016/j.cplett.2018.05.028>

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Stretchable Hydrogen Sensors Employing Palladium Nanosheets Transferred onto An Elastomeric Substrate

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Stretchable hydrogen sensors were fabricated from Pd nanosheets that were transferred onto a PDMS substrate. To prepare the Pd nanosheets, a Pd thin film on PDMS was first biaxially stretched and then PDMS substrate was etched off. The size of Pd nanosheets decreased as the applied strain increased and the film thickness decreased. A transfer technique was utilized to implement the stretchable hydrogen sensors. The stretchable sensors exhibited negative response behaviors upon the exposure to hydrogen gas. Interestingly, the sensors worked even under large strains up to 30%, demonstrating a potential as a high-strain-tolerable hydrogen sensor for the first time.

Keywords: Stretchable hydrogen sensors, Pd nanosheets, biaxial stretching, nanocracks, PDMS

1. Introduction

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