

# 國立臺灣大學技術行銷表

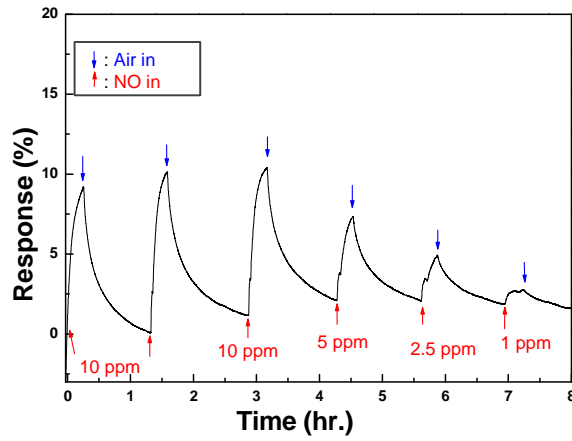
台大案號:06A-100831

產學合作中心聯絡人：蘇祈烈

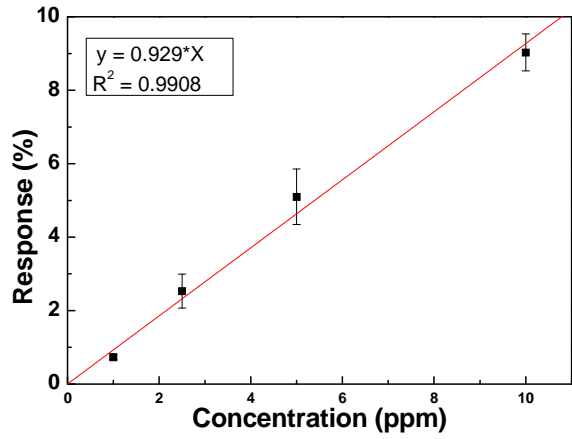
電話：02-33669949

e-mail：such@ntu.edu.tw

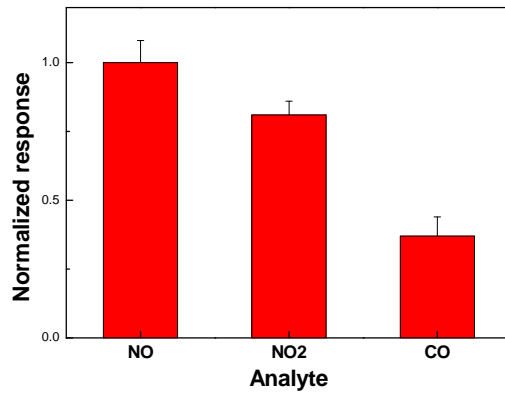
產品/技術名稱	高靈敏度導電高分子膜電阻式一氧化氮感測器
發明人/單位	戴子安、林崇文、林家裕、何國川、施文彬、張培仁
產品/技術說明	利用氧化聚合之原位成膜方式，直接將高分子單體聚合在欲成膜之基材上。利用酸鹼處理大幅提高本高分子膜對目標氣體之訊號大小。添加 3-thiophene carboxylic acid 單體共聚合以提升訊號大小及選擇性。較市售之 PEDOT:PSS 對一氧化氮更具有專一性。
應用範圍	生物醫療以及一般空氣品質檢測
產品/技術優勢	在常溫下可得到最大的訊號，相較使用金屬氧化物所製作之感測材料，大多需操作在高溫下(300°C)才可得較佳訊號強度。利用導電高分子製成之氣體感測器，同時具有同時具有靈敏度高，且可操作於室溫之優點，為氣體感測器開創另一市場之可能。
市場潛力	可製成體積小且待機時間長之室內或戶外有害氣體感測器，取代體積龐大之氣體感測器。
產品/技術 智財權保護方式	專利申請中



圖一：PEDOT/TCA 複合高分子膜感測器於不同一氧化氮濃度下之訊號。



圖二：PEDOT/TCA 複合高分子膜感測器之訊號與一氧化氮濃度之校正曲線。



圖三：PEDOT/TCA 複合高分子膜感測器於不同待測物下之訊號。

圖片  
(已公開之成果  
可提供圖片)

# Marketing Abstract of NTU's Invention Disclosure

NTU's docket no: \_\_\_\_\_ (由產學合作中心填寫)

CIAC contact :

Tel :

e-mail :

<b>Title</b>	Highly Sensitive Conducting Polymer Based Chemiresistive Type Nitric Oxide Gas Sensor
<b>Inventor (s)</b>	Chi-An Dai, Chung-Wen Lin, Chia-Yu Lin, Kuo-Chuan Ho, Wen-Pin Shih, Pei-Zen Chang
<b>Brief Description</b>	By using oxidizing polymerization and <i>in-situ</i> polymerization method, we synthesize the polymer film directly on the target electrode. The sensing response is increased by treating the sensing film with acid and base and by adding 3-thiophene carboxylic acid monomer. More specified to NO gas compared to the commercially available conducting polymer PEDOT:PSS.
<b>Fields of Application</b>	Biomedical sensors, and air quality sensors.
<b>Advantages</b>	The biggest response is obtained at rather low temperature (room temperature), compared to the sensors based on metal oxide (~300°C). The sensors based on conducting polymers have both the advantages of high sensitivity and being operated at room temperature.
<b>Market Potential</b>	It can be applied to the small-sized indoor or outdoor sensor, which can replace the large-sized gas sensing equipment.
<b>IP Right(s)</b>	

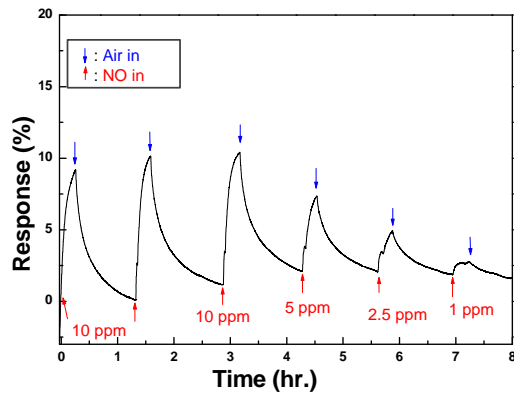


Fig. 1 Response of the PEDOT/TCA composite sensor in different concentration of NO gas.

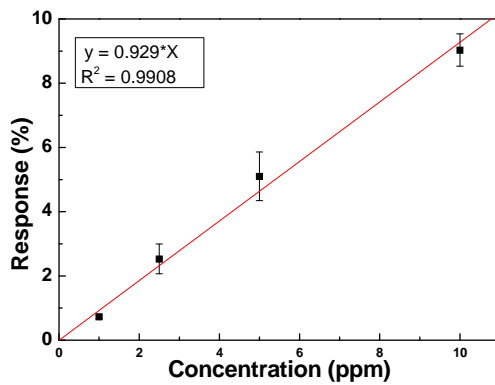


Fig. 2 The calibration curve of the PEDOT/TCA composite sensor.

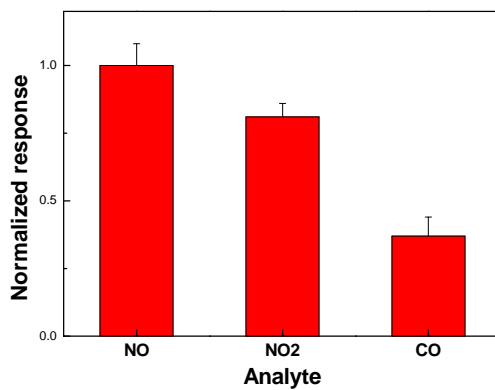


Fig. 3 Response of the PEDOT/TCA composite sensor to different analyte.

Picture