

# Permanently porous conjugated polymers for the detection of low-volatility explosives Jennifer L. Novotney and William R. Dichtel Department of Chemistry and Chemical Biology, Cornell University, Ithaca, NY 14853 USA

## **Motivation**





public safety

vapor pressure



**Richard Reid boarded an** American Airways flight in 2001 with undetected PETN in his shoe

people annually UN News Centre. April 3, 2007.



### **Current Detection Methods**



**Bomb-sniffing dogs Effective**, cute



**Itemizer Detector** 



## **Parts-per-trillion detection Parts-per-quadrillion detection** limit for TNT limit for TNT

Che, Y.; Gross, D.E.; Huang, H.; Yang, D.; Yang, X; Discekici, E.; Xue, Z.; Zhao, H.; Moore, J.S.; Zang, L. *J. Am. Chem. Soc.* 2012*, 134, 4978–4982* 

#### **Signal Amplification**





