Supplementary Information

Enhancement in Room Temperature Ammonia Sensing Properties of Naphthalene Diimides through Core Expansion

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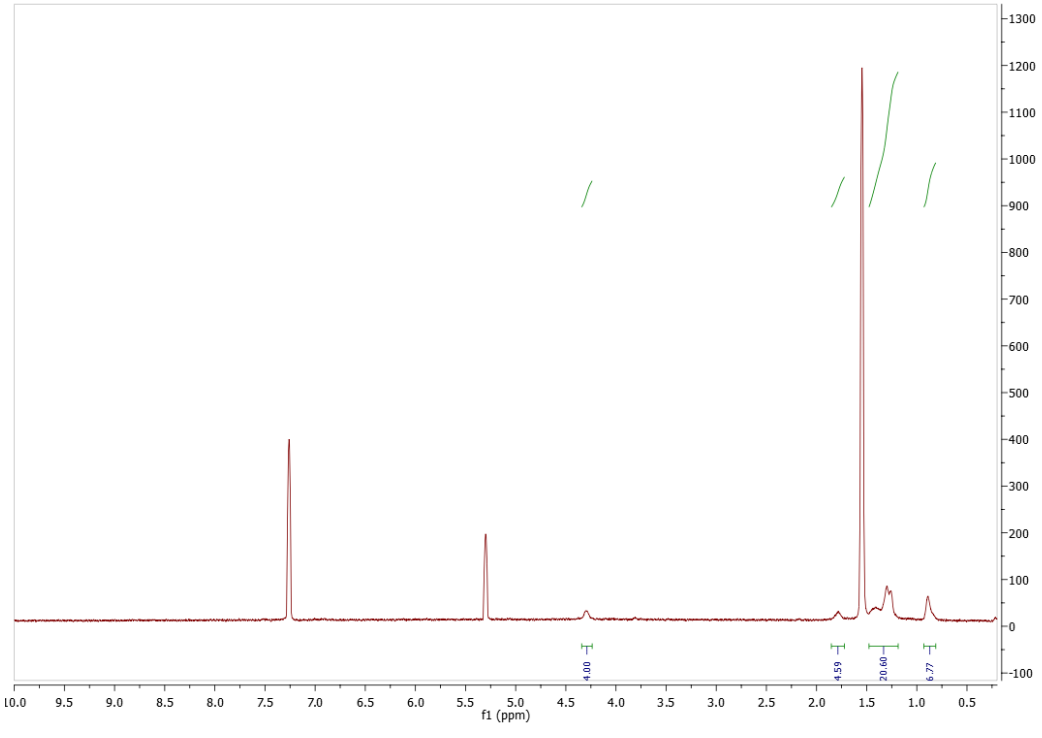
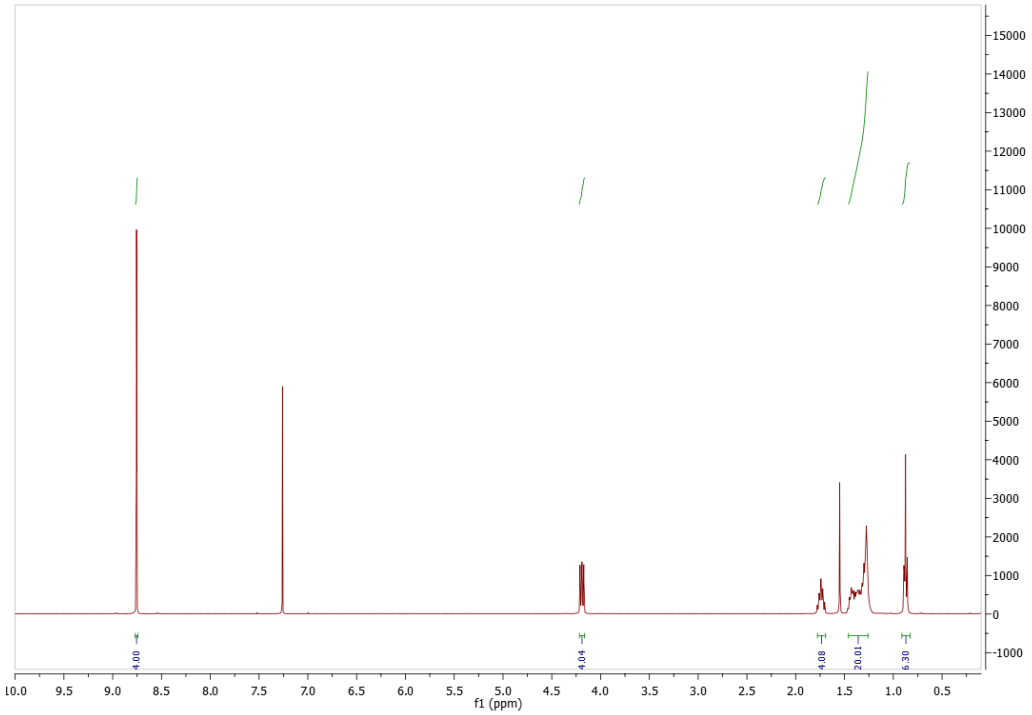
NMR of NDI-CN$_4$:



NMR of NDI-H_4:



Recyclability studies of NDI-CN_4 sensor towards various concentrations of ammonia

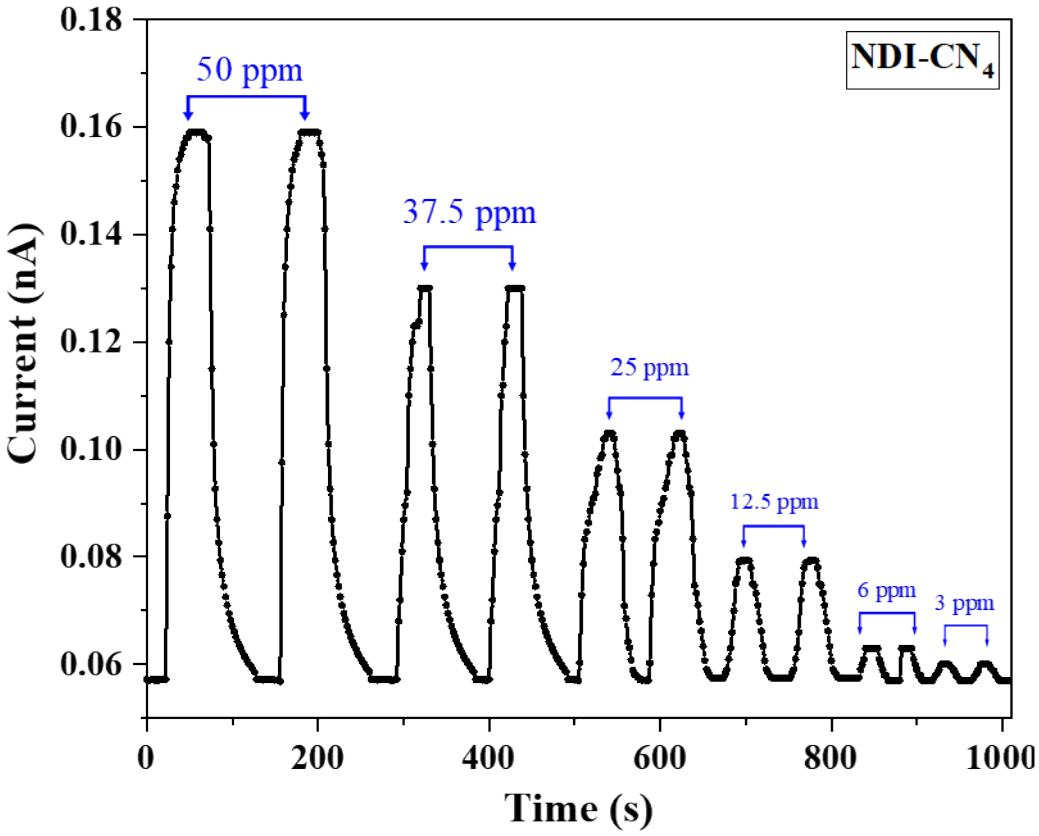


Fig. S1: Response of NDI-CN_4 towards various concentrations of ammonia

Cyclic voltammetry study of NDI-H_4 and NDI-CN_4

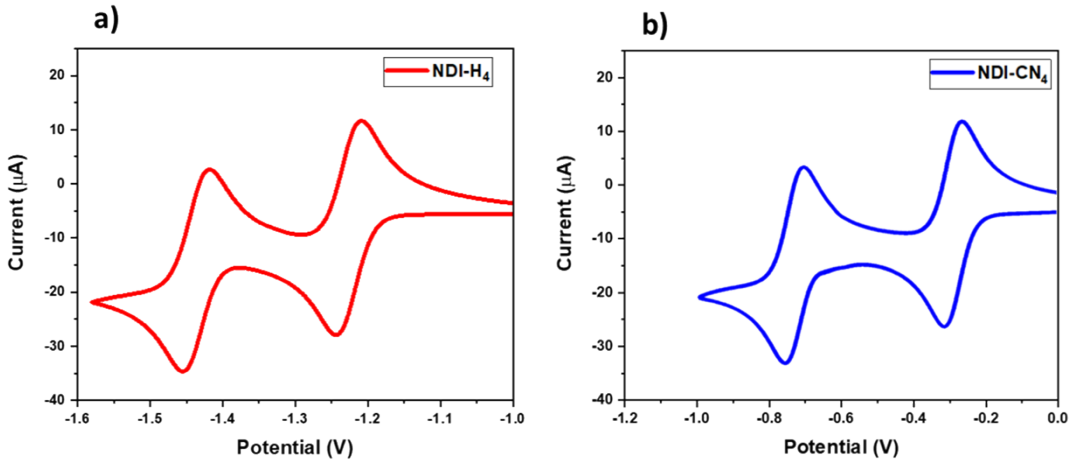


Fig. S2: Cyclic voltammograms of (a)NDI-H_4 and (b) NDI-CN_4, run in dichloromethane (DCM) at a sweep rate of 50 mV per second.

Table S1. Frontier molecular orbital energies as estimated from cyclic voltammetry and optical absorption

Materials	**$E_{red\ onset}$**	**LUMO (eV)**	**HOMO (eV)**	**$\lambda_{abs\ onset}$**	**E_g (eV)**
NDI-H_4	-1.18	-3.22	-6.58	368 nm	3.36
NDI-CN_4	-0.21	-4.19	-6.33	578 nm	2.14

The details of calculations regarding $E_{red\ onset}$, HOMO/LUMO levels, $\lambda_{abs\ onset}$ and E_g (eV) are given in the previous reports. [1, 2]

1. Y. Hu, X. Gao, C.-a. Di, X. Yang, F. Zhang, Y. Liu, H. Li and D. Zhu, *Chem. Mater.*, 2011, **23**, 1204-1215.
2. L. Leonat, G. Sbarcea and I. V. Branzoi, *UPB Sci Bull Ser B*, 2013, **75**, 111-118.