

Additional Materials

A humidity tolerance and room temperature carbon soot@ZIF-71 sensor for toluene vapour detection

Lesego Malepe,^a Tantoh Derek Ndinteh,^a Patrick Ndungu,^{*b} and Messai Adenew Mamo,^{*a}

Department of Chemical Science, University of Johannesburg, PO Box 17011, Doornfontein, 2028 Johannesburg, South Africa. E-mail: messaim@uj.ac.za

Department of Chemistry, University of Pretoria, Private Bag X20, Hatfield, 0028, Pretoria, South Africa. Email: patrick.ndungu@up.ac.za

S.1. Sensor 1 is made up of ZIF-71 only.

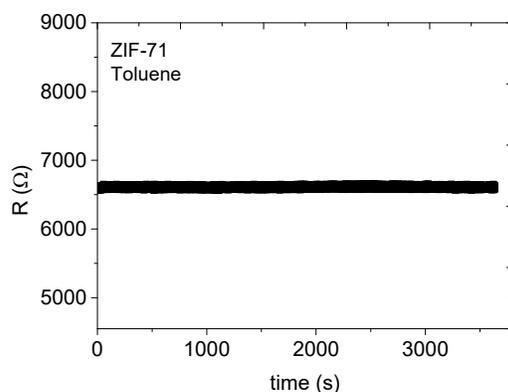
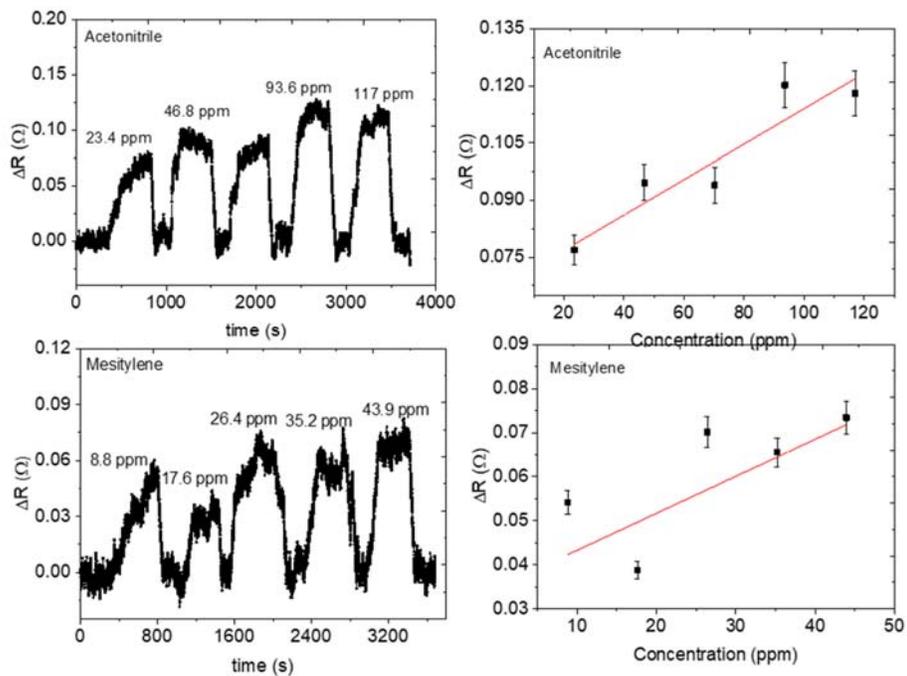


Fig. S.1: Relative resistance response curve of ZIF-71 sensor towards toluene vapour.

S. 2. Gas sensing responses of sensor 2, made up of CNPs only.



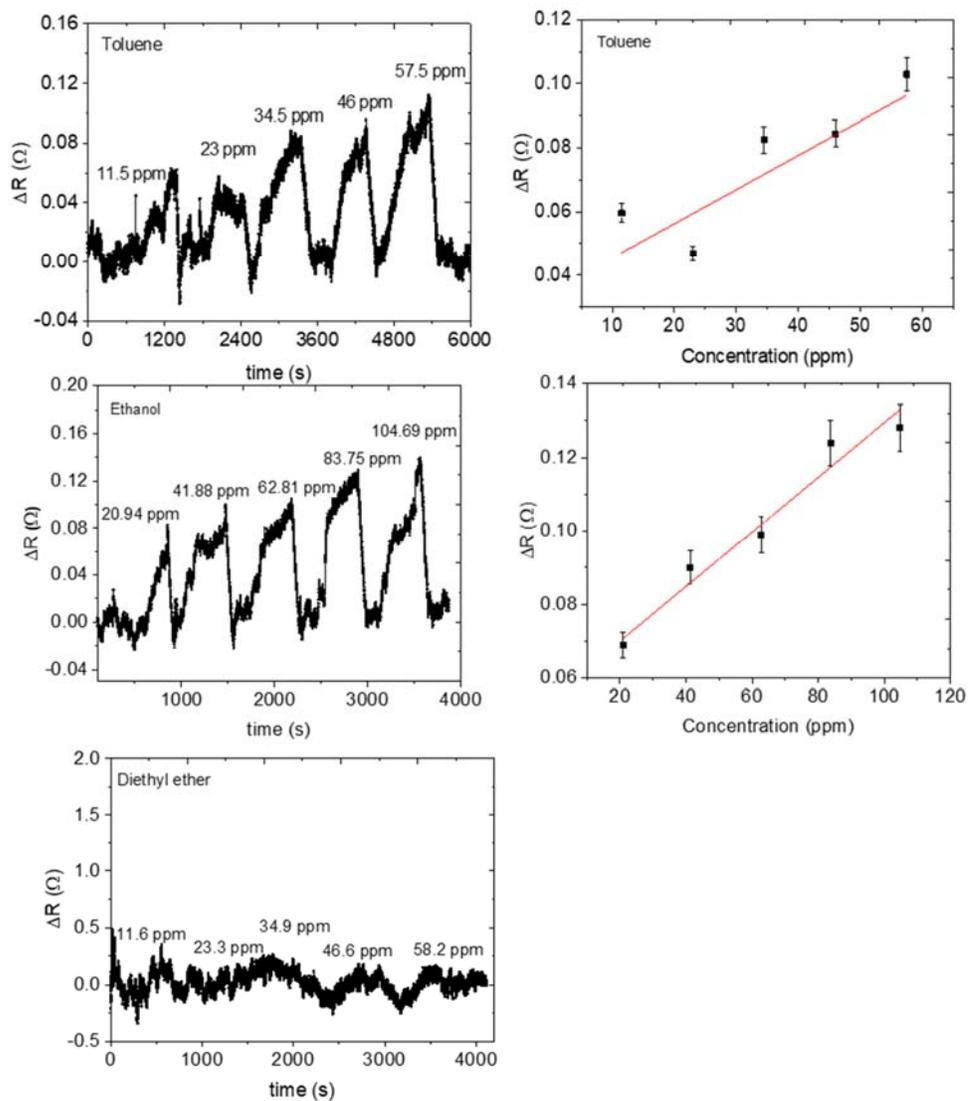
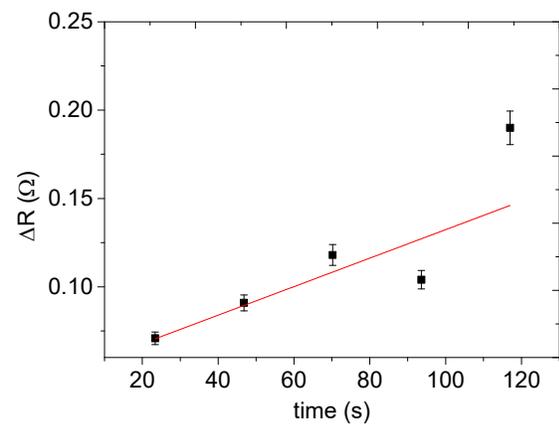
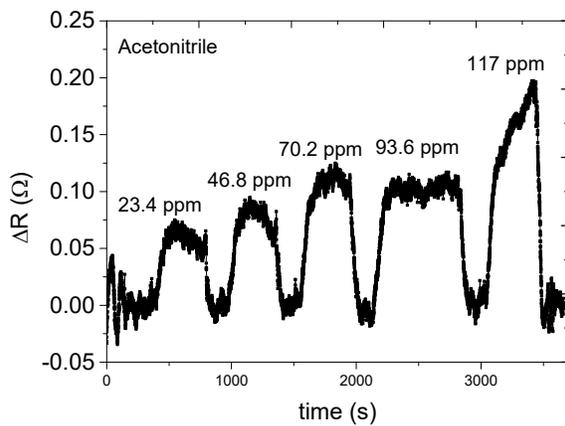
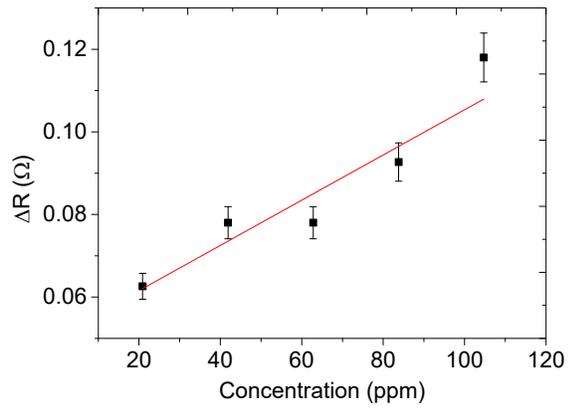
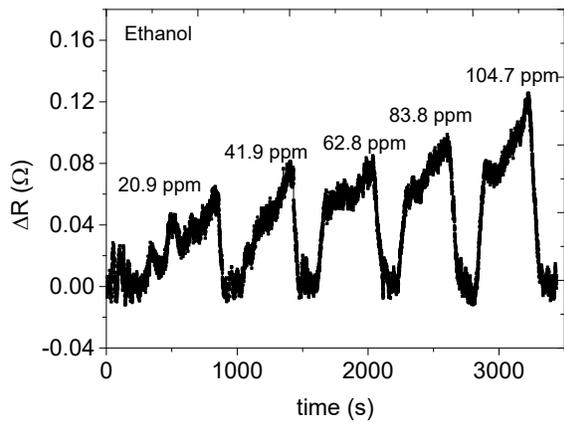
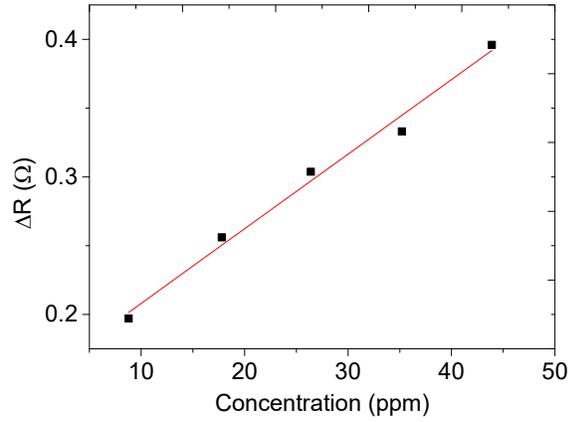
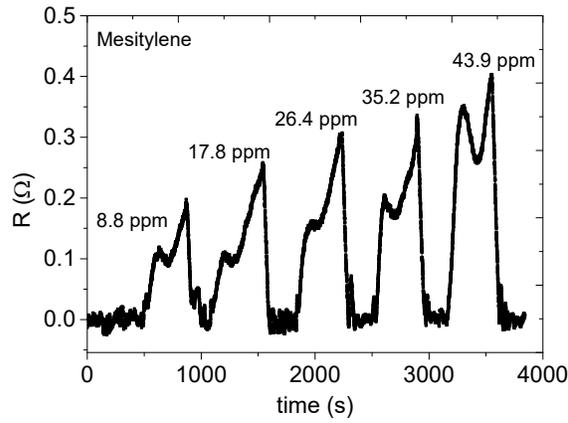


Fig. S. 2: Dynamic response curves of CNPs sensor towards toluene, mesitylene, acetonitrile, diethyl ether, and ethanol vapours, and their calibration curves.

S. 3. Sensor 3 made up of 1:1 mass ratio CNPs@ZIF-71



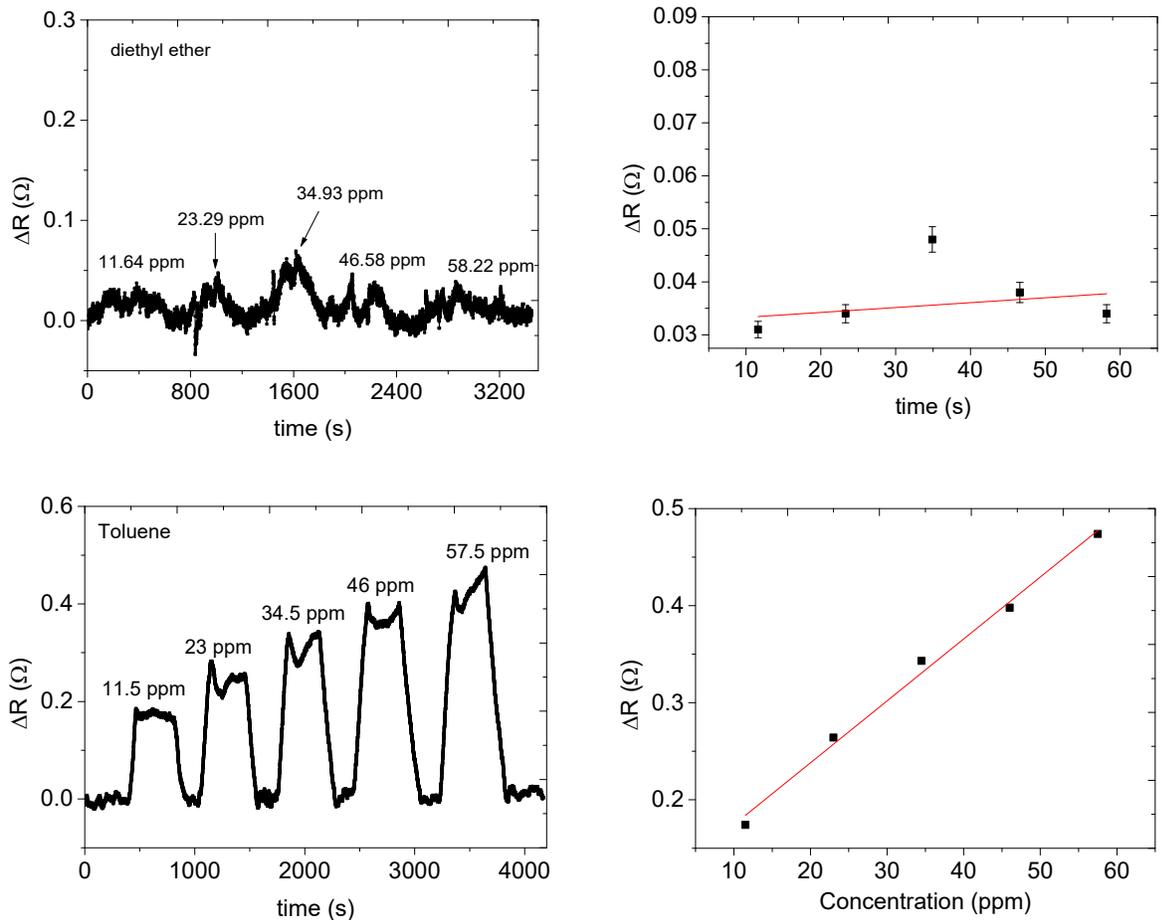
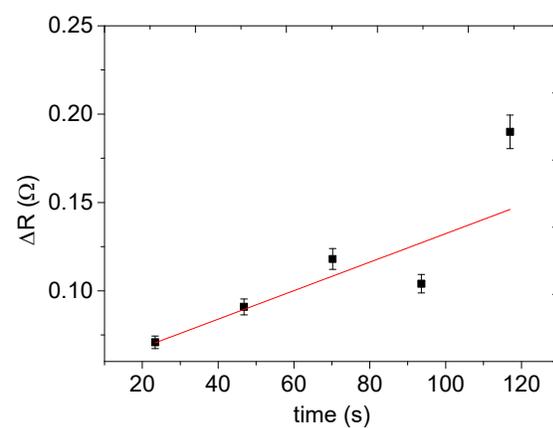
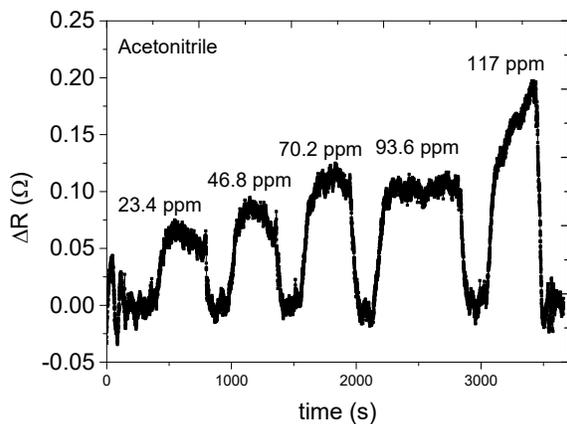
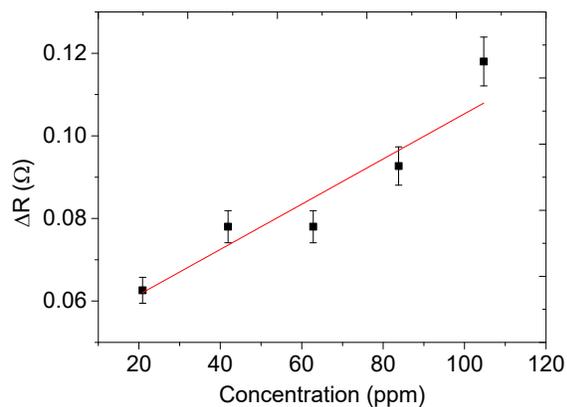
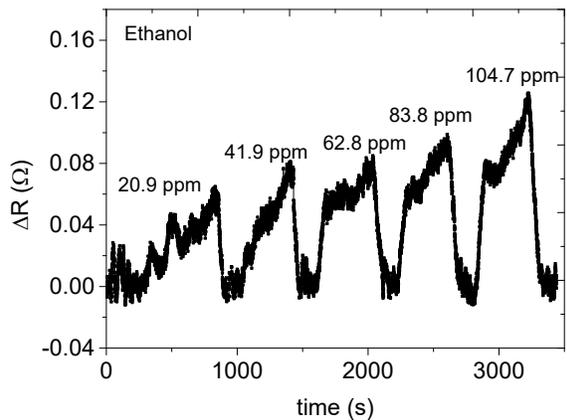
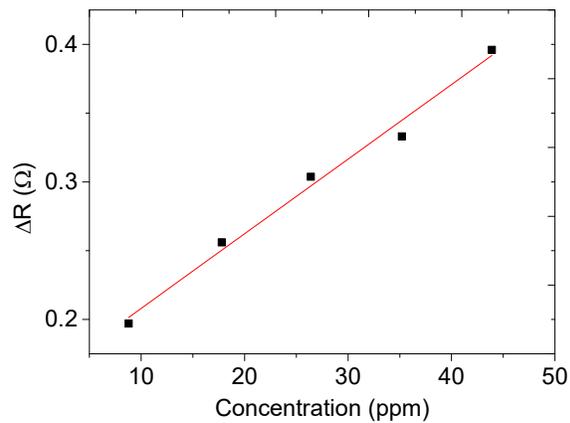
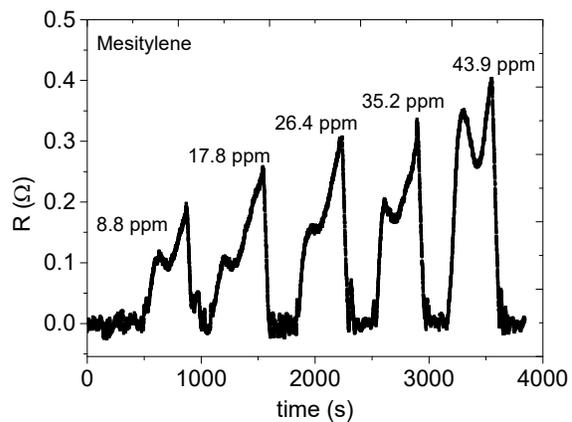


Fig. S. 3: Dynamic response curves of sensor 3 towards toluene, mesitylene, acetonitrile, diethyl ether, and ethanol vapours, and their calibration curves.

S. 3. Sensor 3 made up of 1:1 mass ratio CNPs@ZIF-71



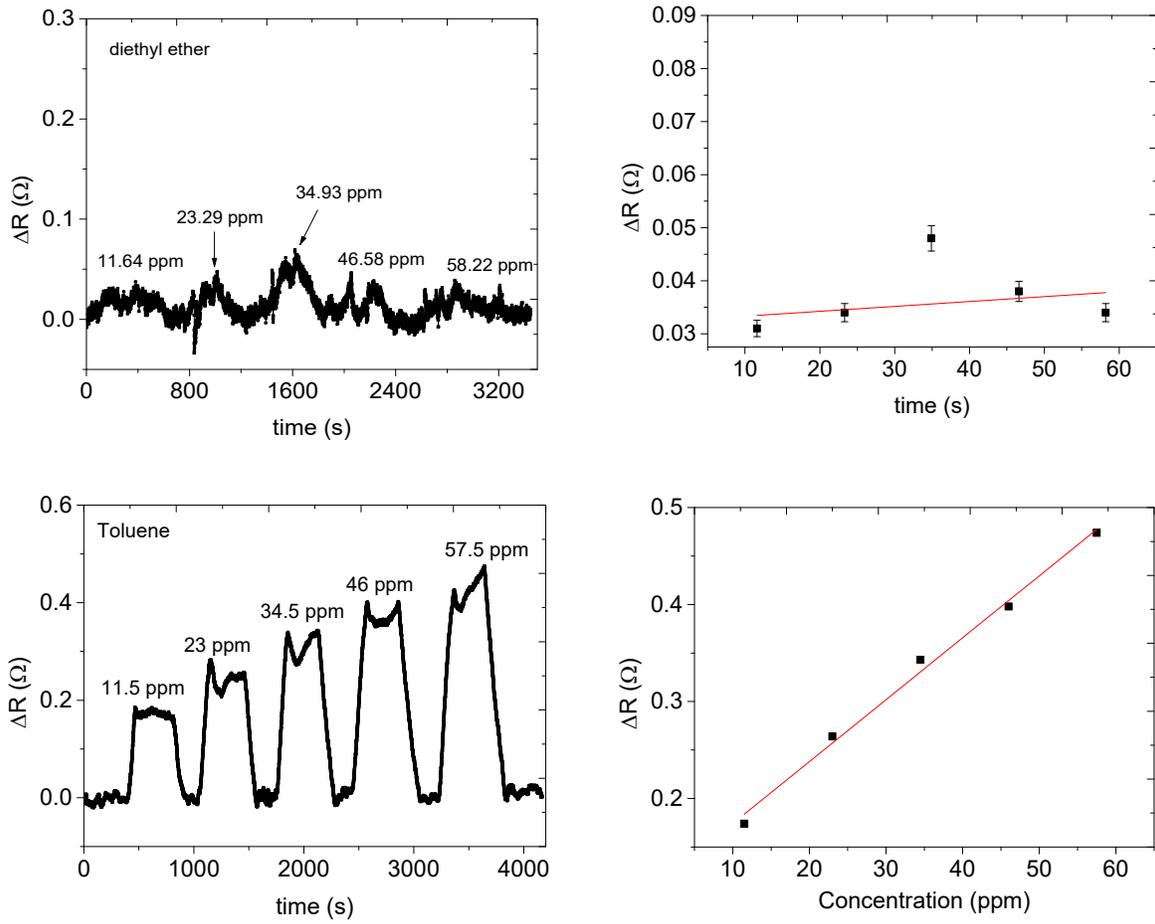
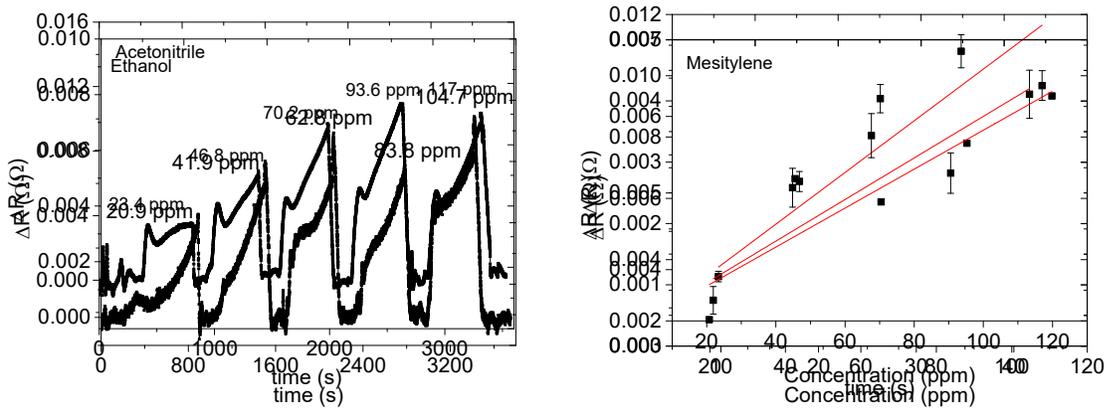


Fig. S. 3: Dynamic response curves of sensor 3 towards toluene, mesitylene, acetonitrile, diethyl ether, and ethanol vapours, and their calibration curves.

S. 4. Sensor 4 is made up of 2:1 mass ratio of CNPs@Zif-71



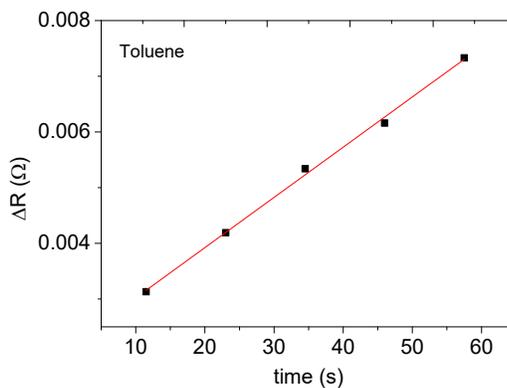
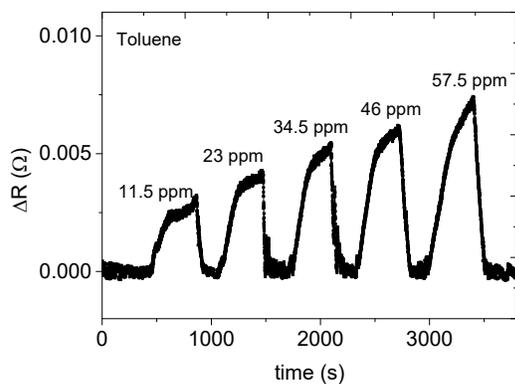
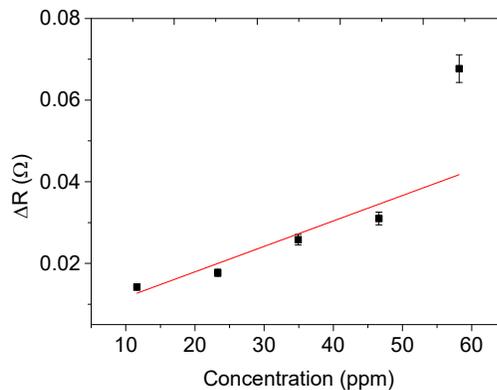
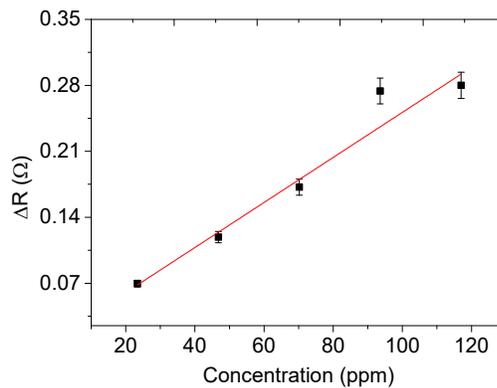
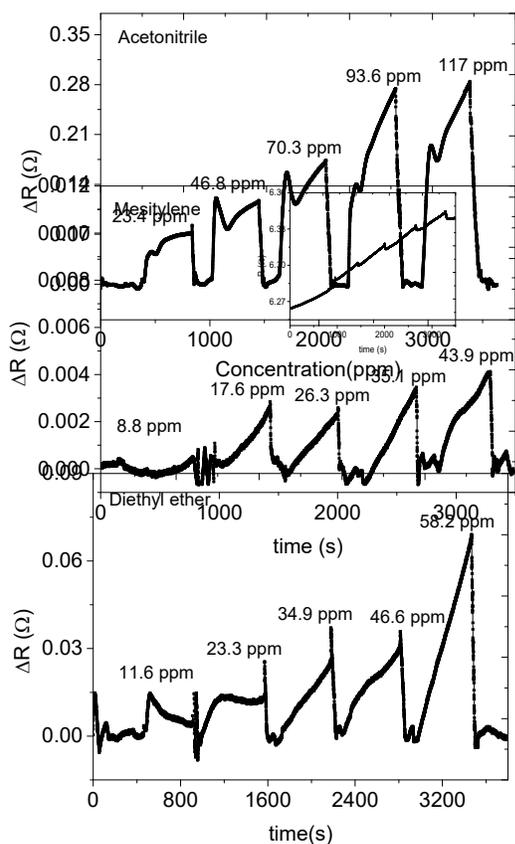


Fig. S. 4: Dynamic response curves of sensor 4 towards toluene, mesitylene, acetonitrile, diethyl ether, and ethanol vapours.

S. 5. Sensor 5 is made up of 3:1 CNPs@ZIFs composite



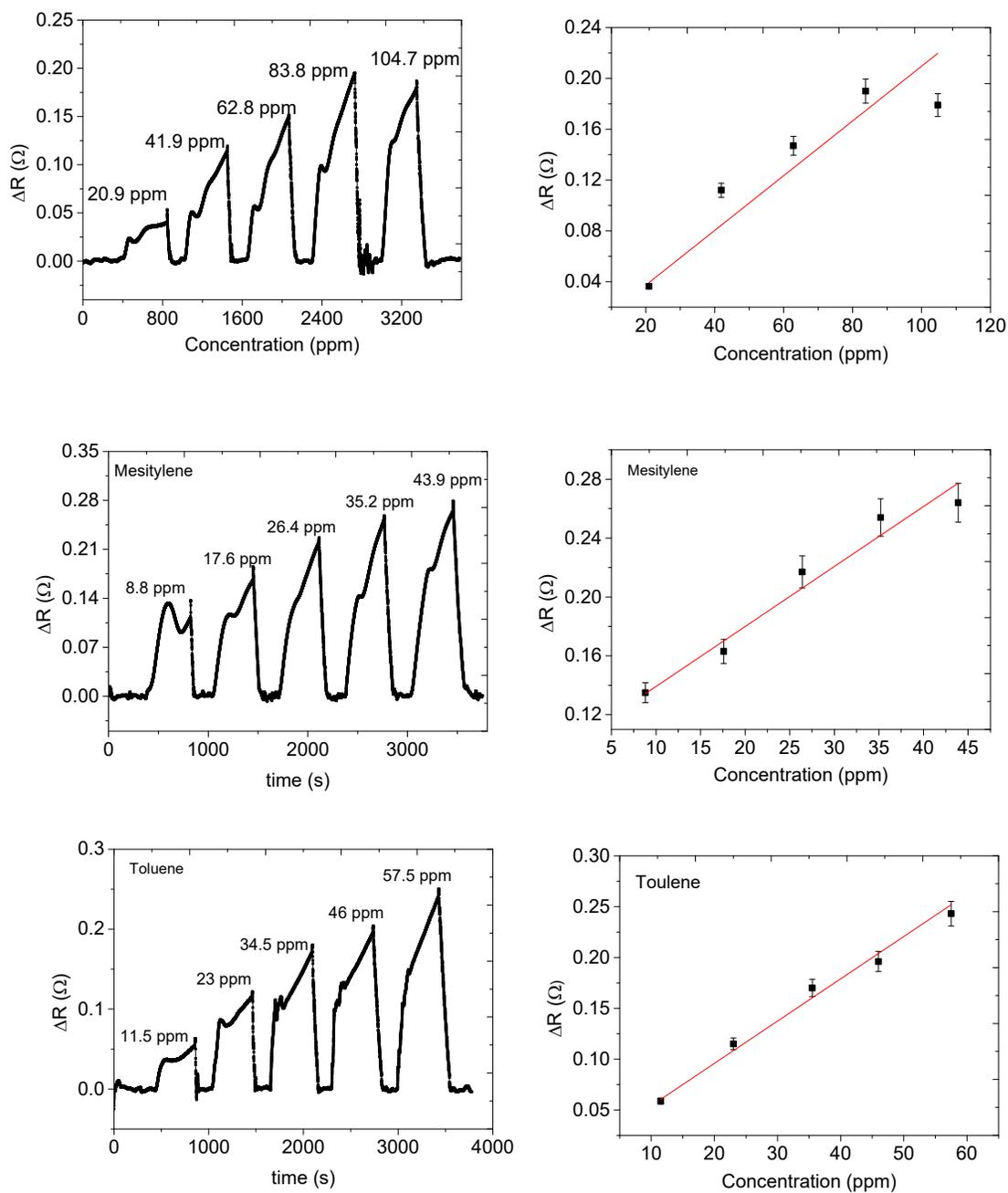


Fig. S. 5: Dynamic response curves of sensor 5 towards toluene, mesitylene, acetonitrile, diethyl ether, and ethanol vapours and their calibration curves.