

Electronic Supplementary Information†

A Supramolecular Cd(II)-metallogel: An Efficient Semiconductive Electronic Device†

Subhendu Dhibar,^a Arka Dey,^b Santanu Majumdar,^a Debasish Ghosh,^a Amit Mandal,^c Partha Pratim Ray,^{*,b} Biswajit Dey^{*,a}

^aDepartment of Chemistry, Visva-Bharati University, Santiniketan 731235, India

*E-mail: bdeychem@gmail.com; Tel: +91 9433868381

^bDepartment of Physics, Jadavpur University, Jadavpur, Kolkata, 700 032, India

*E-mail: partha@phys.jdvu.ac.in; Fax: +91 3324138917

^cDepartment of Chemistry, Behala college, Parnashree, Kolkata, 700060, India

FT-IR Spectroscopy of CdA-OX Metallogel

Fourier transform infrared (FTIR) spectra of the CdA-OX metallogel showed different characteristic stretching frequencies at ~ 3500 (broad), 2922, 1425 and 1050 cm^{-1} and this clearly indicates the predominant supramolecular interactions among the constituents of CdA-OX metallogel.^{1,2}

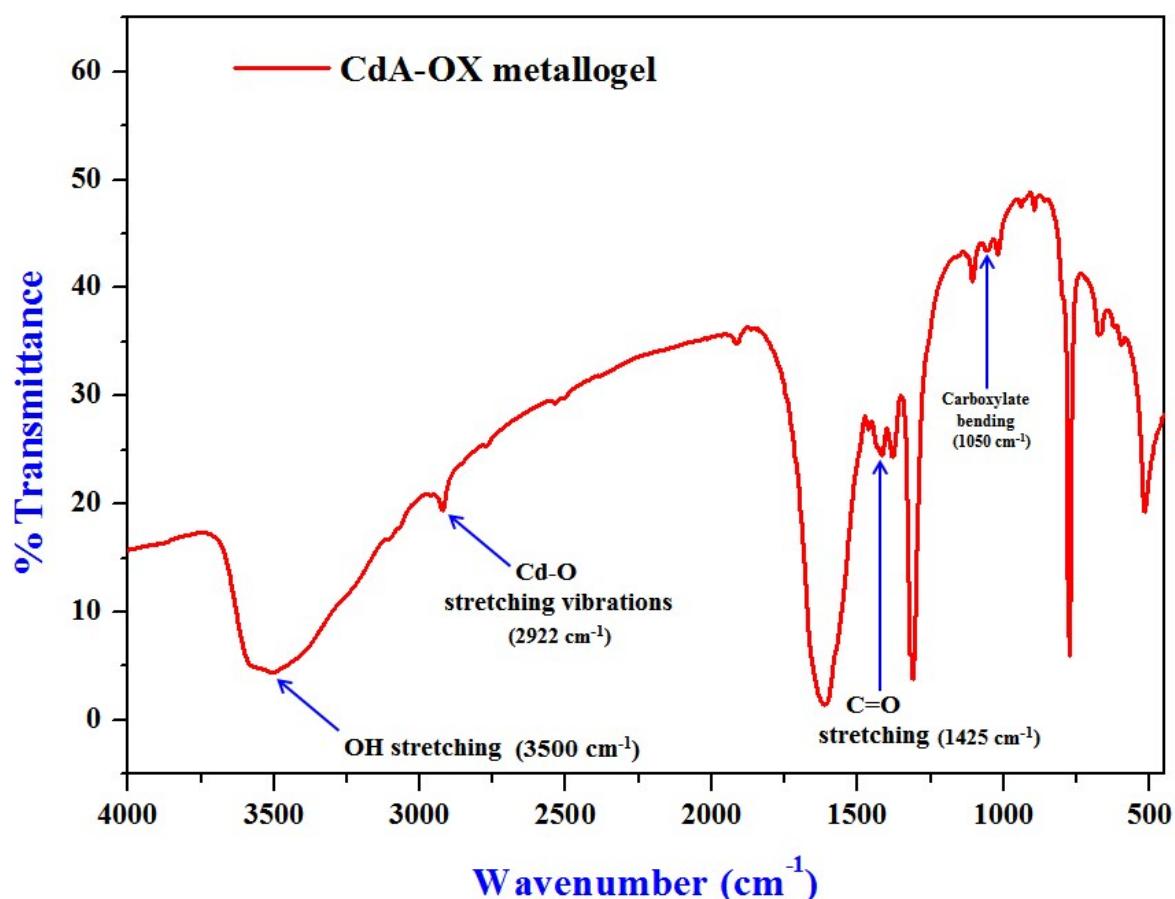
















Fig. S1. FT-IR Spectra of CdA-OX Metallogel.

Gelation ability

The gelation process of $\text{Cd}(\text{OAc})_2 \cdot 2\text{H}_2\text{O}$ and oxalic acid dihydrate was tested in different solvents (other than DMF) where the minimum critical gel concentration of CdA-OX metallogel was maintained by the synthetic method of CdA-OX metallogel in DMF solvent, described in the experimental section (2.3) of the manuscript.^a The formations of CdA-OX metallogel in different solvents were studied through checking the stability of the gel containing inverted vial against the gravitational force (*Inversion Vial Test*).¹ The experimental results are mentioned in the Table S1. Table S1 clearly shows that the mechanically stable CdA-OX metallogel is exclusively formed in DMF solvent medium (Fig. 1).

Table S1. Gelation process of CdA-OX metallogel^a in various solvents^b

Entry	Solvent ^b	Phase ^c	Conc. ^d	Vol.	Gelation Time	Gel-Phase Colour	Picture
1.	H ₂ O	WG	1200	1	30s	White	
2.	MeOH	WG	1200	1	>30s	White	
3.	EtOH	WG	1200	1	1min	White	
4.	EtOAc	I	1200	1	-	-	
5.	DMSO	WG	1200	1	1min	White	
6.	CH ₃ CN	P	1200	1	-	-	
7.	DCM	P	1200	1	-	-	
8.	THF	P	1200	1	-	-	
9.	<i>n</i> -Hexane	I	1200	1	-	-	
10.	Acetone	I	1200	1	-	-	
11.	Toluene	I	1200	1	-	-	
12.	CHCl ₃	I	1200	1	-	-	
13.	Benzene	I	1200	1	-	-	
14.	PET	I	1200	1	-	-	

^aGelation tests were performed following the synthetic method discussed in the Experimental Section 2.3.^bSolvent abbreviations: H₂O = Water, MeOH = Methanol, EtOH = Ethanol, EtOAc = Ethyl Acetate, DMSO = Dimethyl sulfoxide, CH₃CN = Acetonitrile, DCM = Dichloromethane, THF = Tetrahydrofuran, CHCl₃ = Chloroform, PET = Petroleum ether.^cWG = weak gel; I = insoluble; P = precipitate.^dMinimum Gelation Concentration (MGC) of CdA-OX metallogel (in mg mL⁻¹).

Reference:

1. S. Saha, E.-M. Schçn, C. Cativiela, D. D. Díaz and R. Banerjee, *Chem. Eur. J.*, 2013, **19**, 9562-9568
2. M. A. Islam, F. Haque, K. S. Rahman, N. Dhar, M. S. Hossain, Y. Sulaiman and N. Amin, *Optik*, 2015, **126**, 3177-3180.