Electronic Supplementary Material (ESI) for Soft Matter.

Supplementary Information

A smart organic gel template as metal cation and inorganic anions sensor

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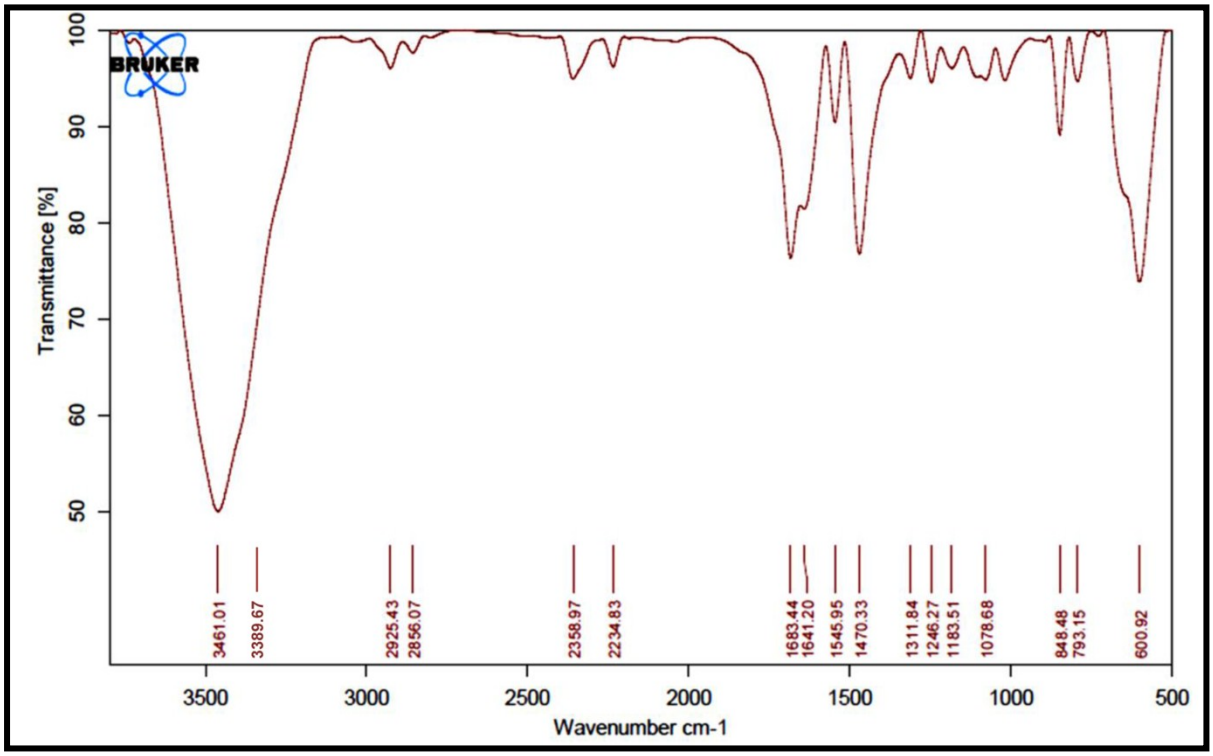


Fig. S1 FT-IR spectrum of gelator molecule **G1**.

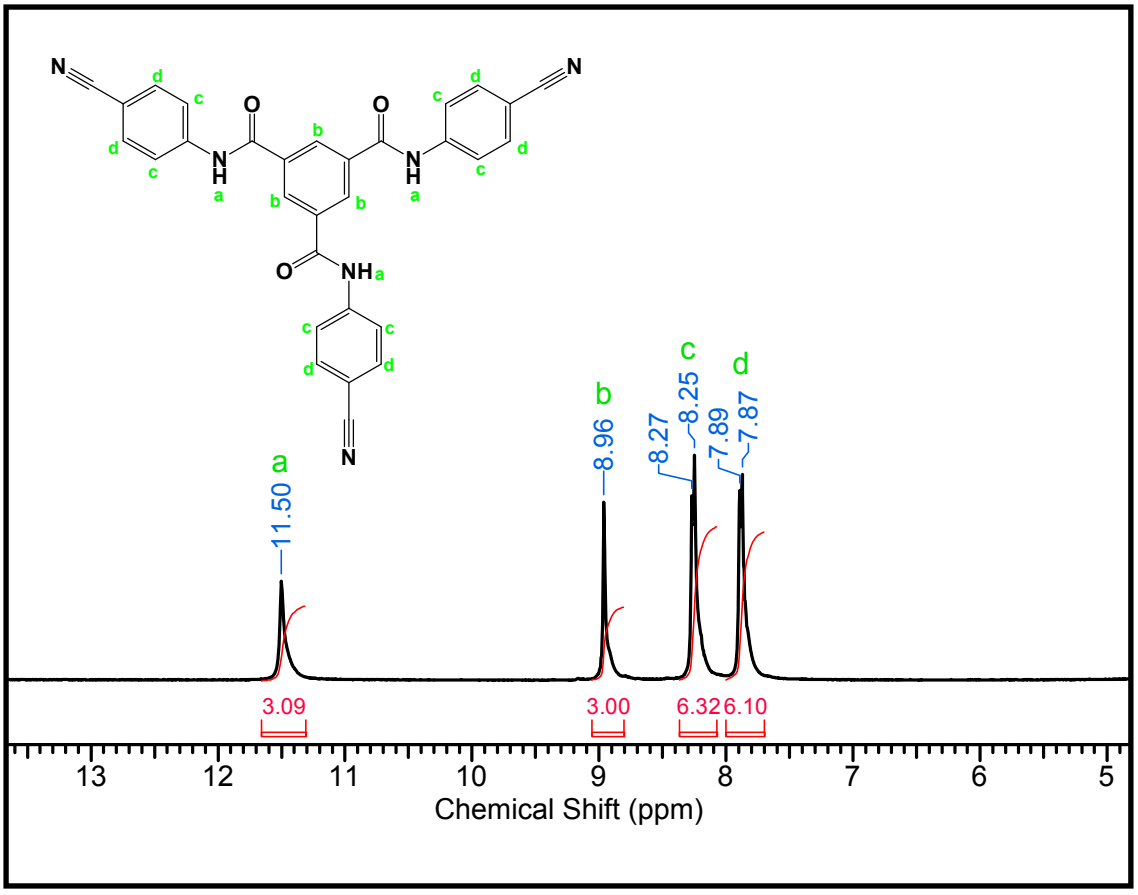


Fig. S2 ^{1}H NMR spectrum of gelator molecule **G1**.

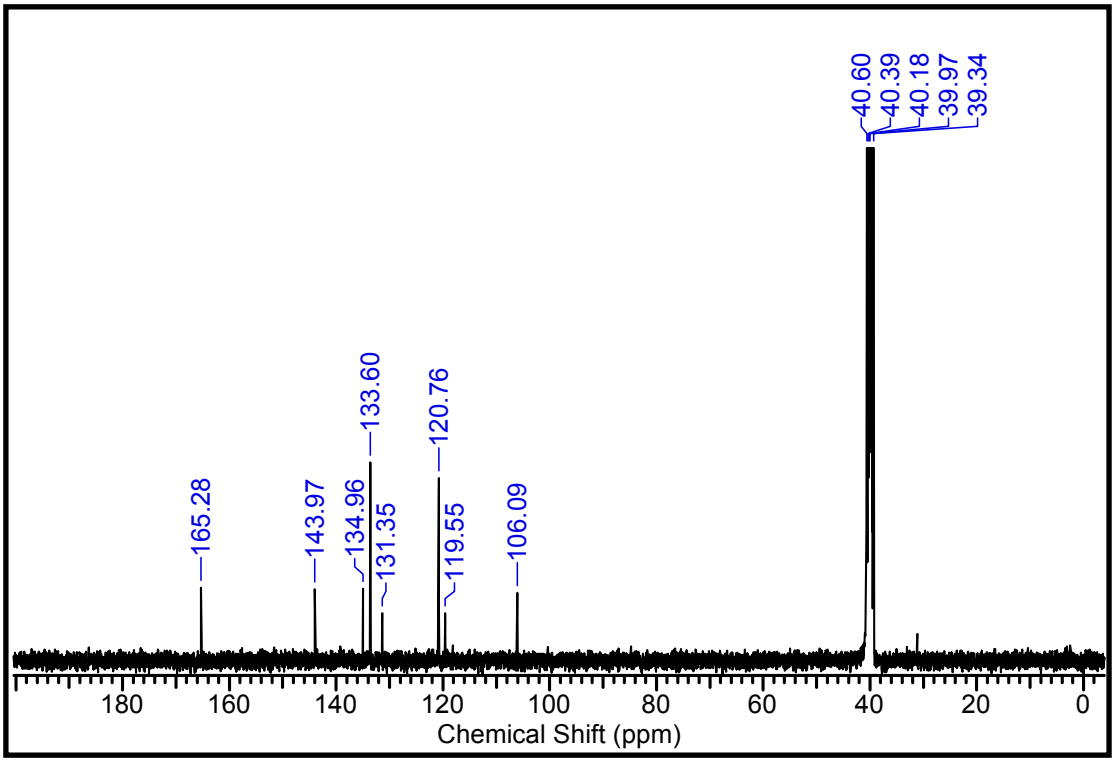


Fig. S3 ^{13}C NMR spectrum of gelator molecule **G1**.

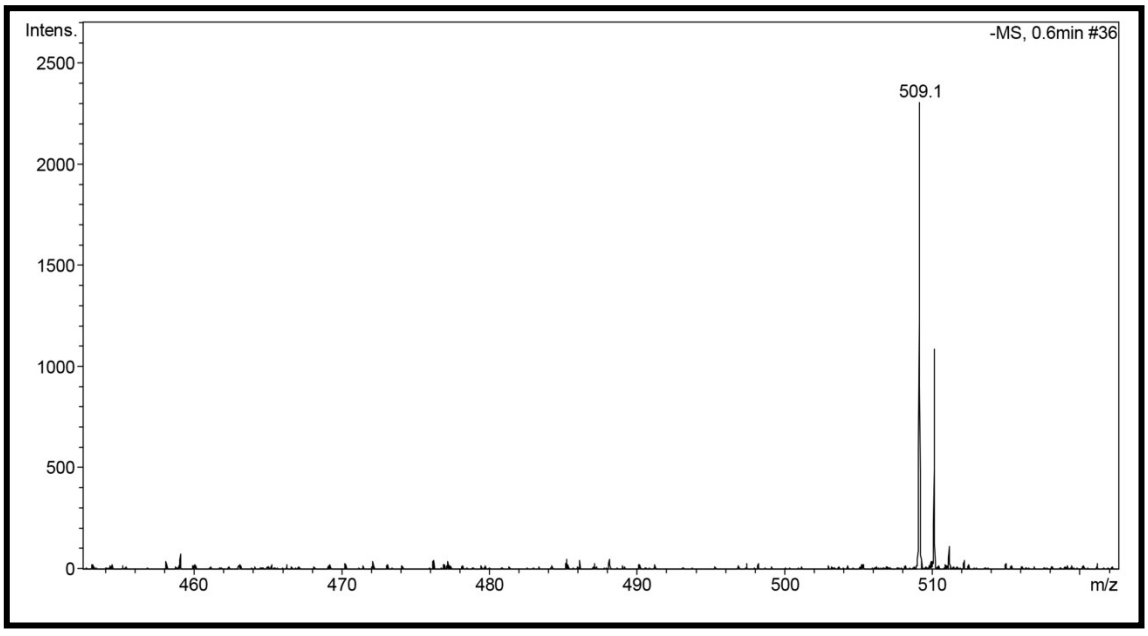


Fig. S4 ESI- Mass spectrum of gelator molecule **G1**.

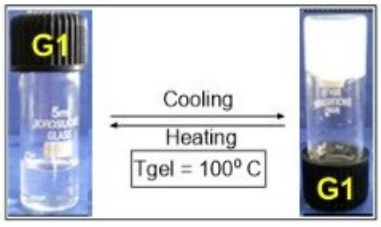


Fig. S5 "Inversion of a test tube" method.

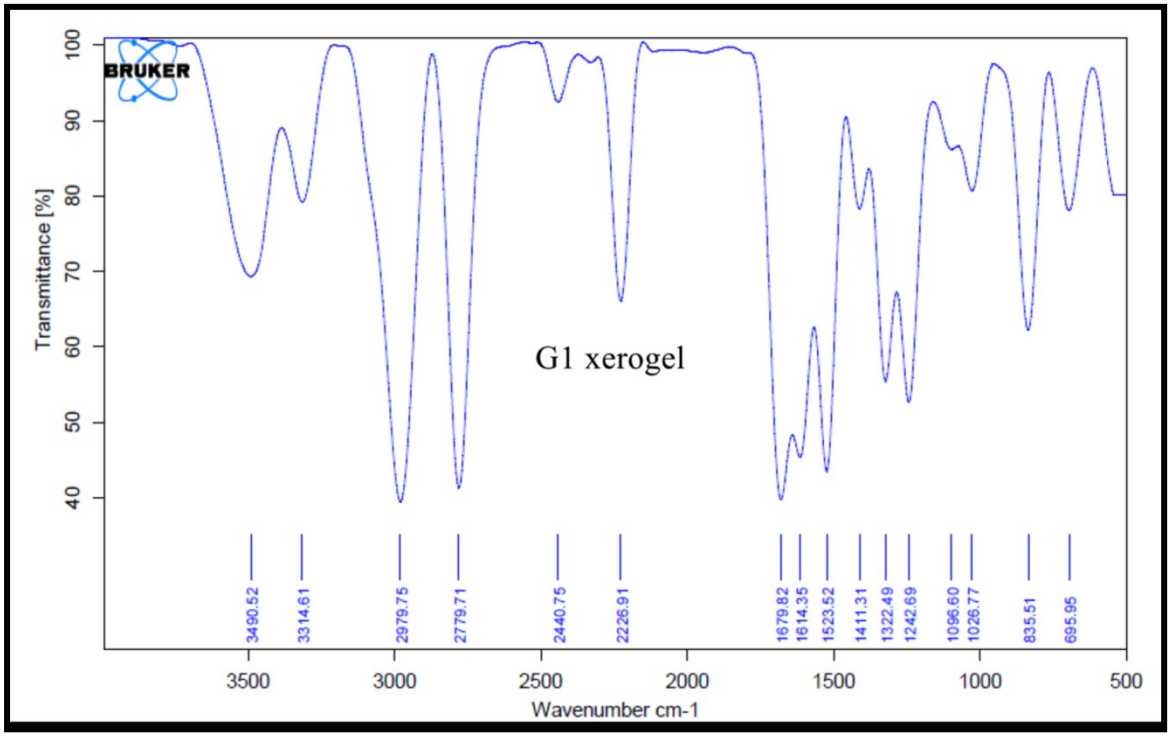


Fig. S6 FT-IR spectra of xerogel of **G1 .**

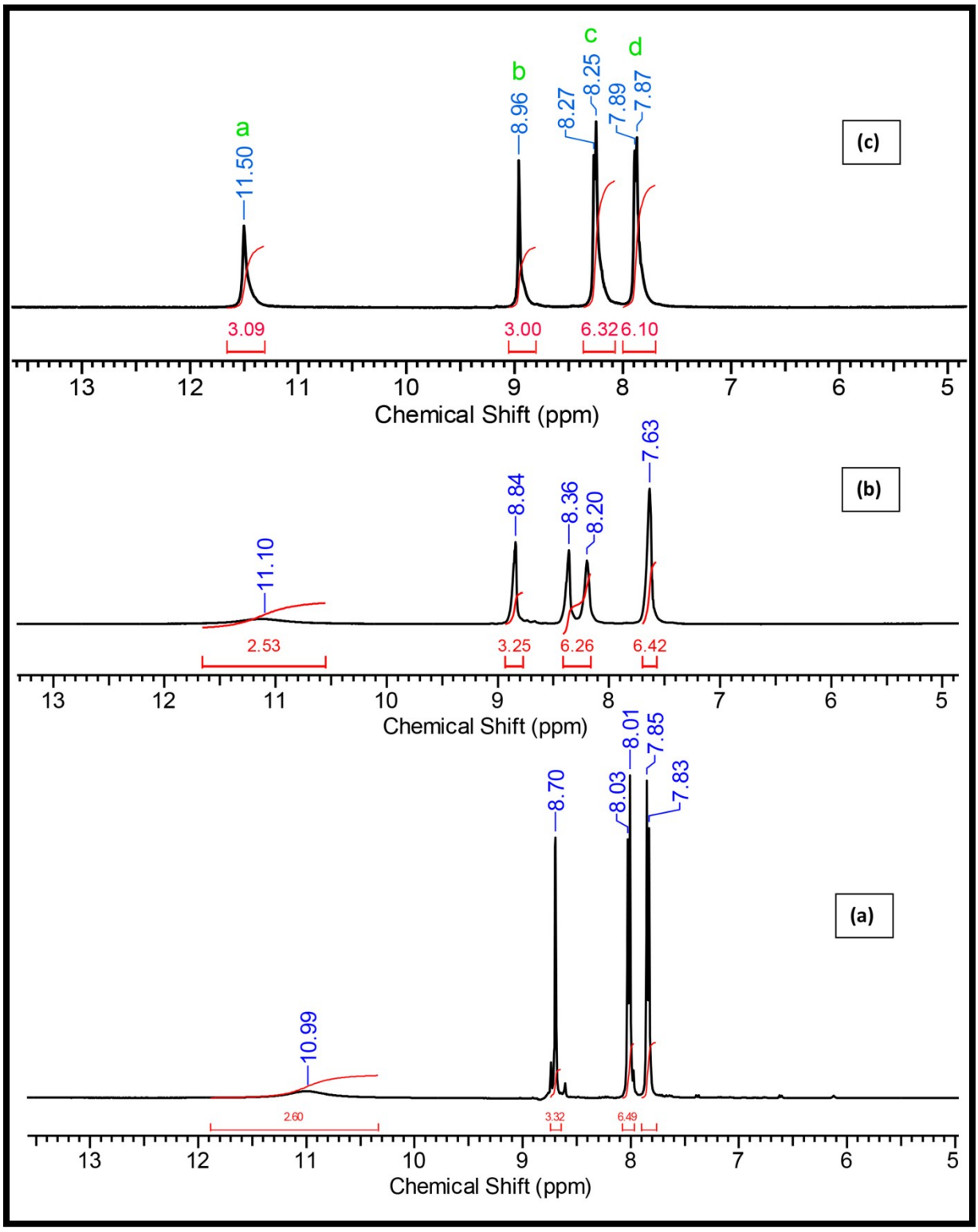


Fig. S7 Partial ^{1}H NMR spectra of G1 in DMSO d_6 at different concentrations:(a) 20 mM (b) 100 mM (c) 150 mM.

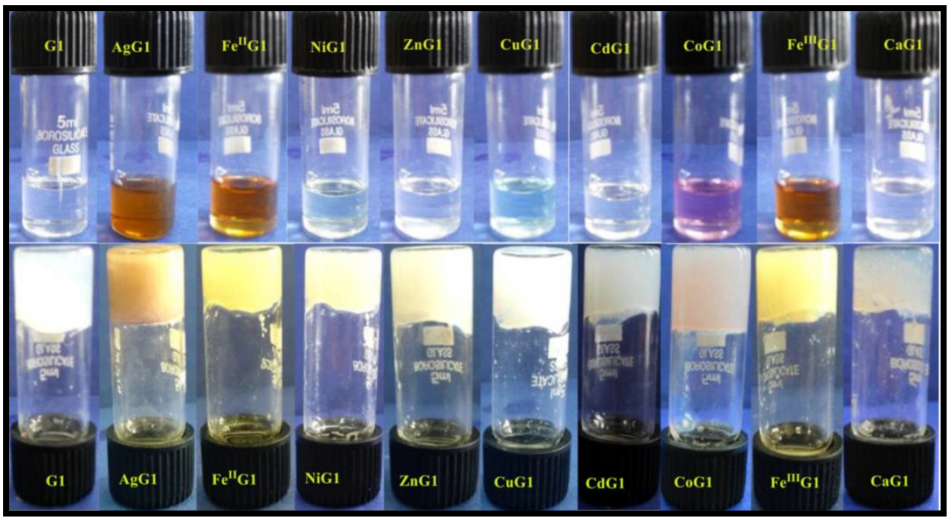
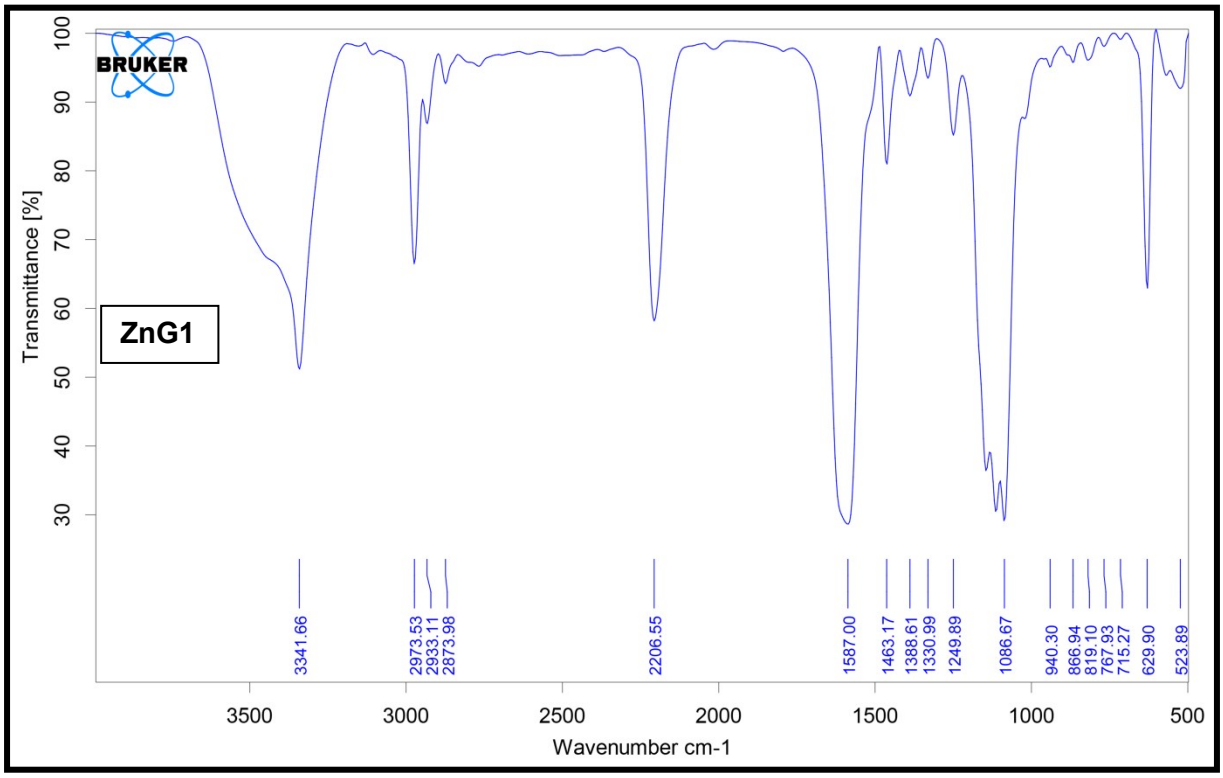
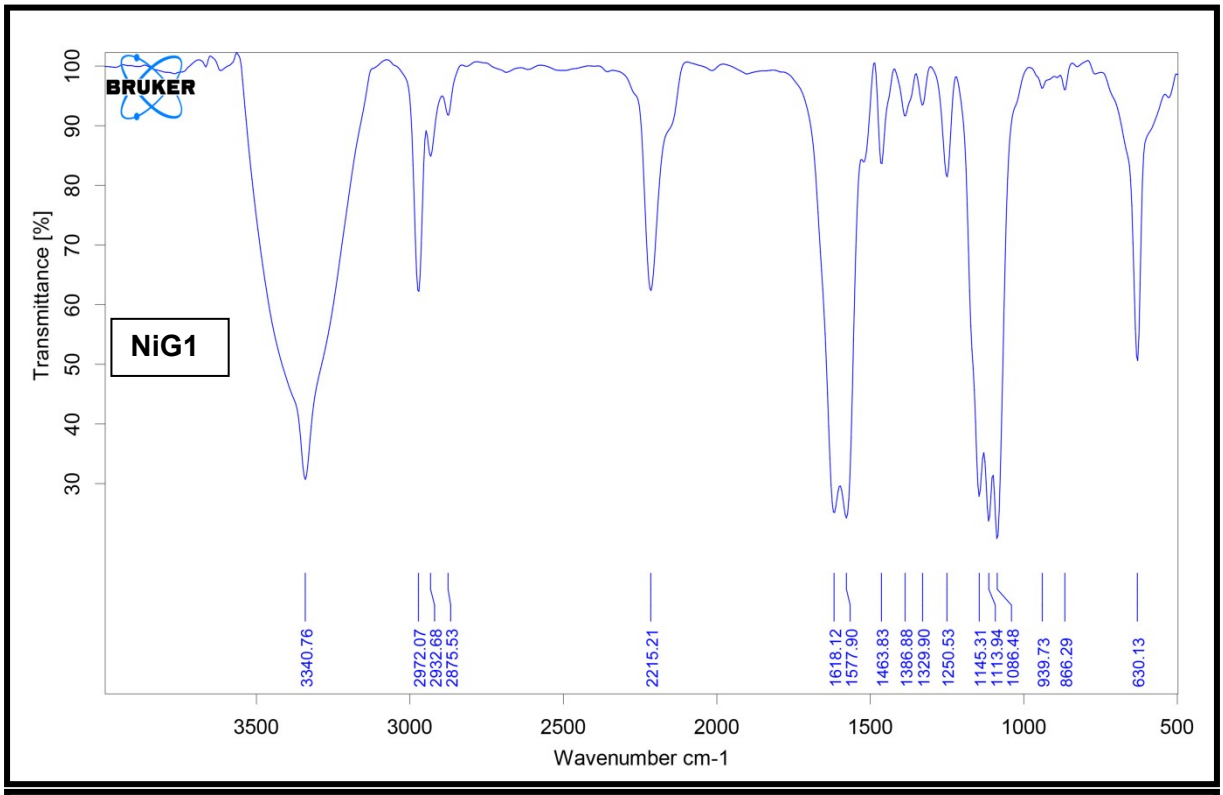
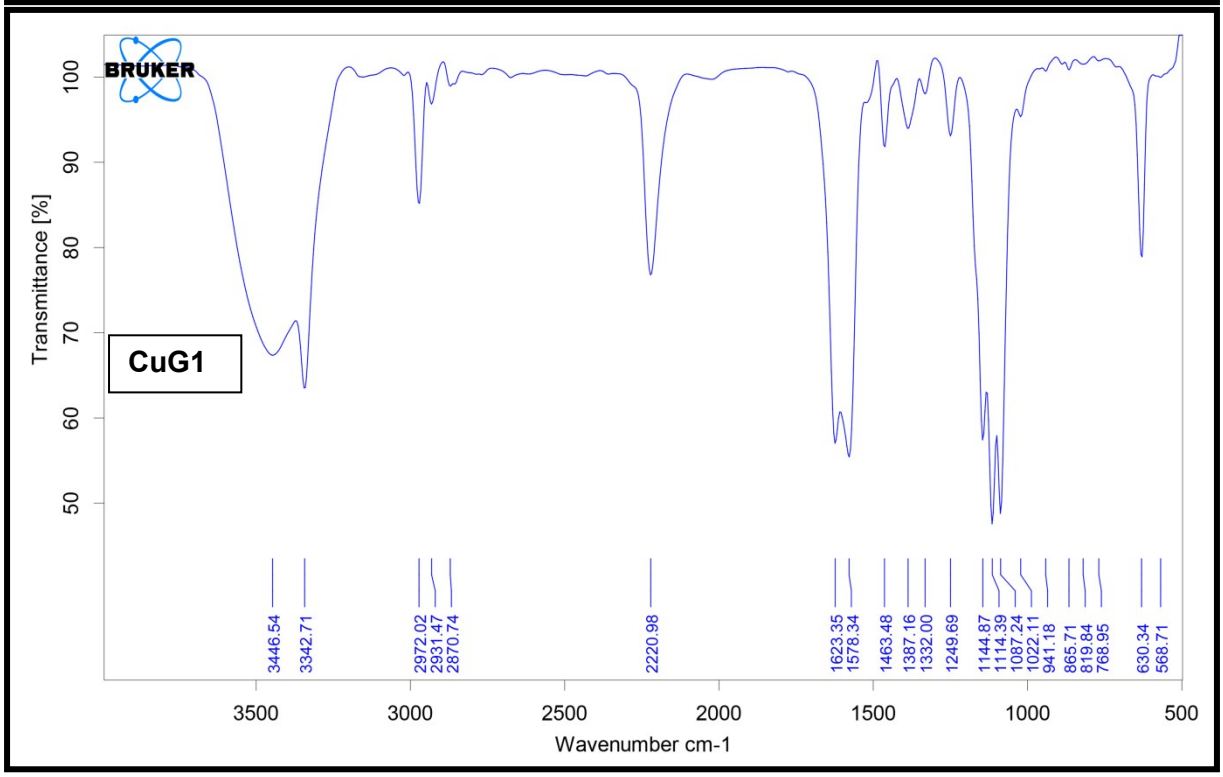


Fig. S8 Photographs of Sol-Gel of gelator **G1** in DMF and **G1** in the presence of various metal ions (using their perchlorate salts as the sources, **G1** : cation = 2:1) under day light.




BRUKER
NiG1
Transmittance [%]
100
90
80
70
60
50
40
30
3340.76
2972.07
2932.68
2875.53
2215.21
1618.12
1577.90
1463.83
1386.88
1329.90
1250.53
1145.31
1113.94
1086.48
939.73
866.29
630.13
3500
3000
2500
2000
1500
1000
500
Wavenumber cm-1


BRUKER
CuG1
Transmittance [%]
100
90
80
70
60
50
3446.54
3342.71
2972.02
2931.47
2870.74
2220.98
1623.35
1578.34
1463.48
1387.16
1332.00
1249.69
1144.87
1114.39
1087.24
1022.11
941.18
865.71
819.84
768.95
630.34
568.71
3500
3000
2500
2000
1500
1000
500
Wavenumber cm-1

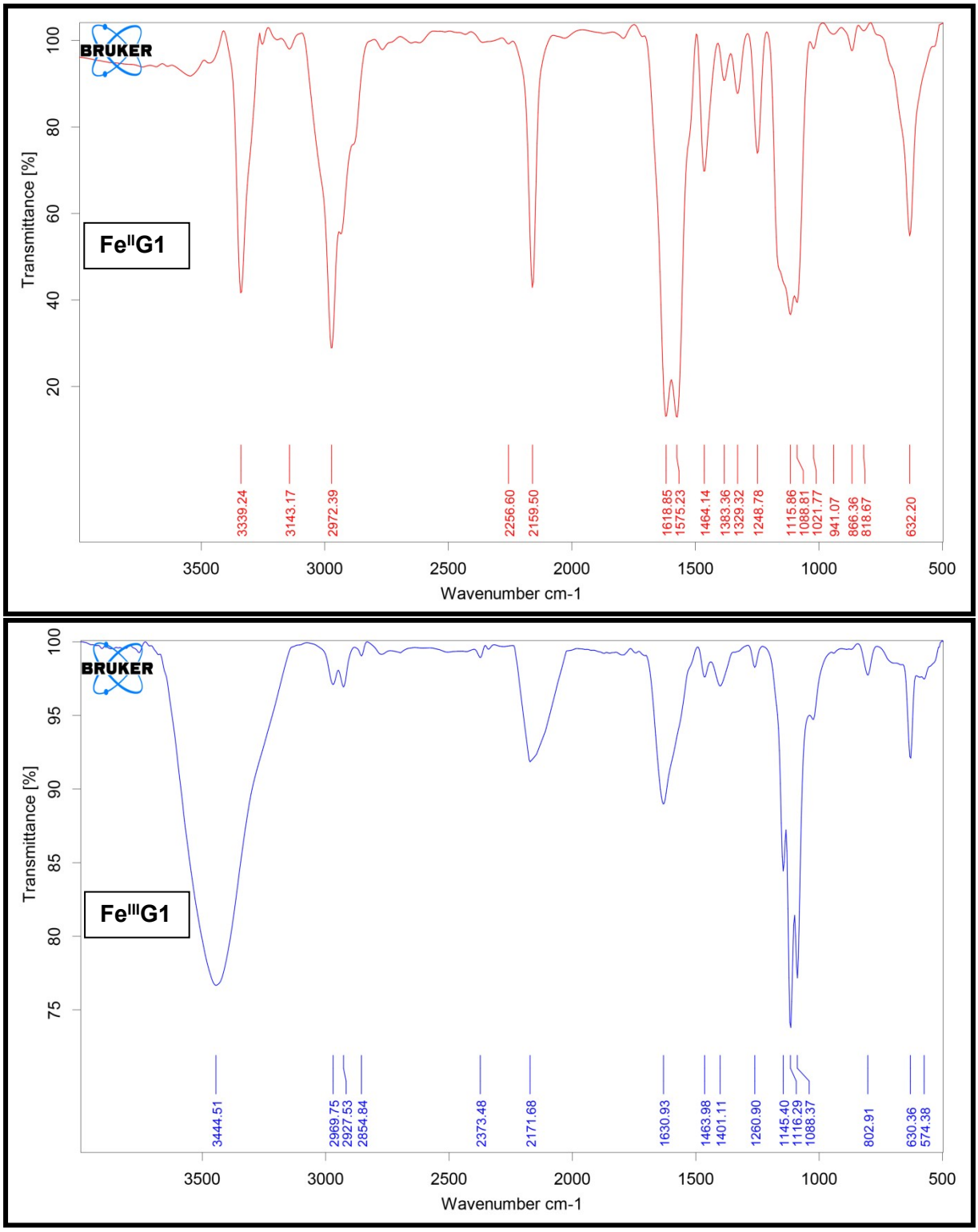
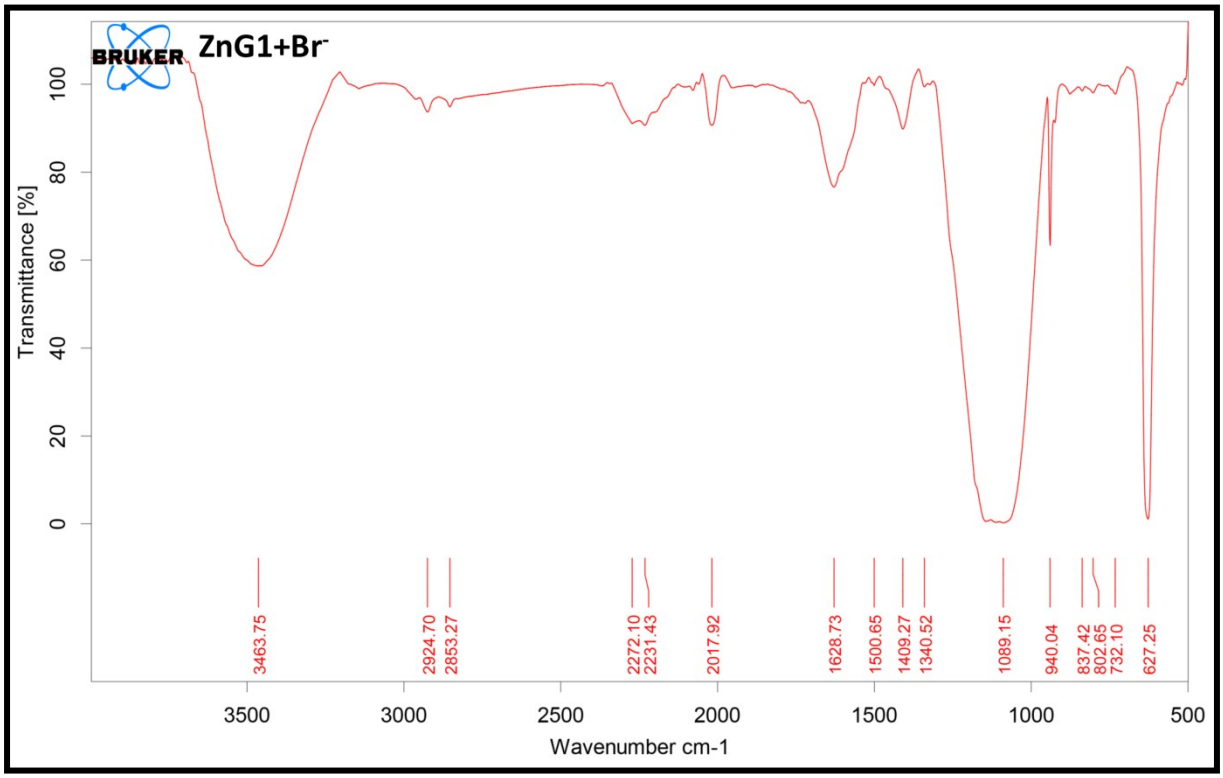
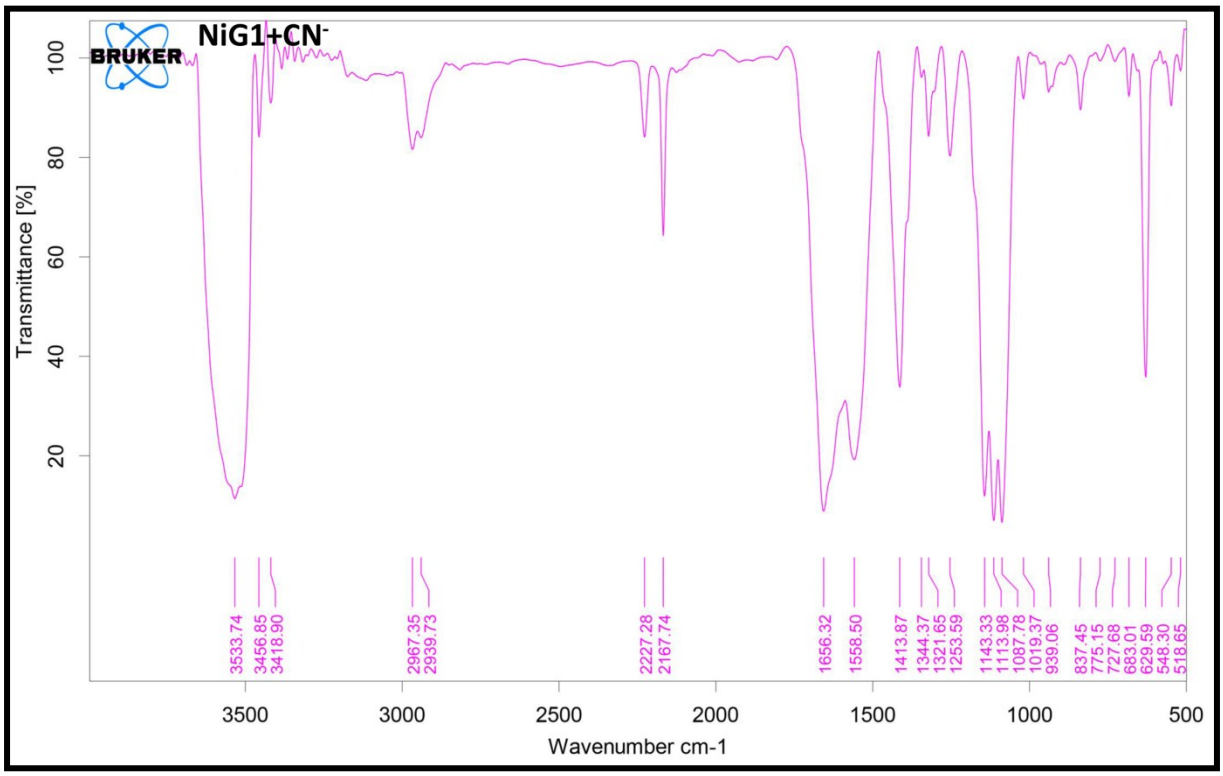


Fig. S9-S13 FT-IR spectra of xerogel of **ZnG1**, **NiG1**, **CuG1**, **Fe^{II}G1, Fe^{III}G1.**


BRUKER
ZnG1+Br-
Transmittance [%]
0
20
40
60
80
100
3463.75
2924.70
2853.27
2272.10
2231.43
2017.92
1628.73
1500.65
1409.27
1340.52
1089.15
940.04
837.42
802.65
732.10
627.25
3500
3000
2500
2000
1500
1000
500
Wavenumber cm-1


BRUKER
NiG1+CN-
Transmittance [%]
20
40
60
80
100
3533.74
3456.85
3418.90
2967.35
2939.73
2227.28
2167.74
1656.32
1558.50
1413.87
1344.37
1321.65
1253.59
1143.33
1113.98
1087.78
1019.37
939.06
837.45
775.15
727.68
683.01
629.59
548.30
518.65
3500
3000
2500
2000
1500
1000
500
Wavenumber cm-1

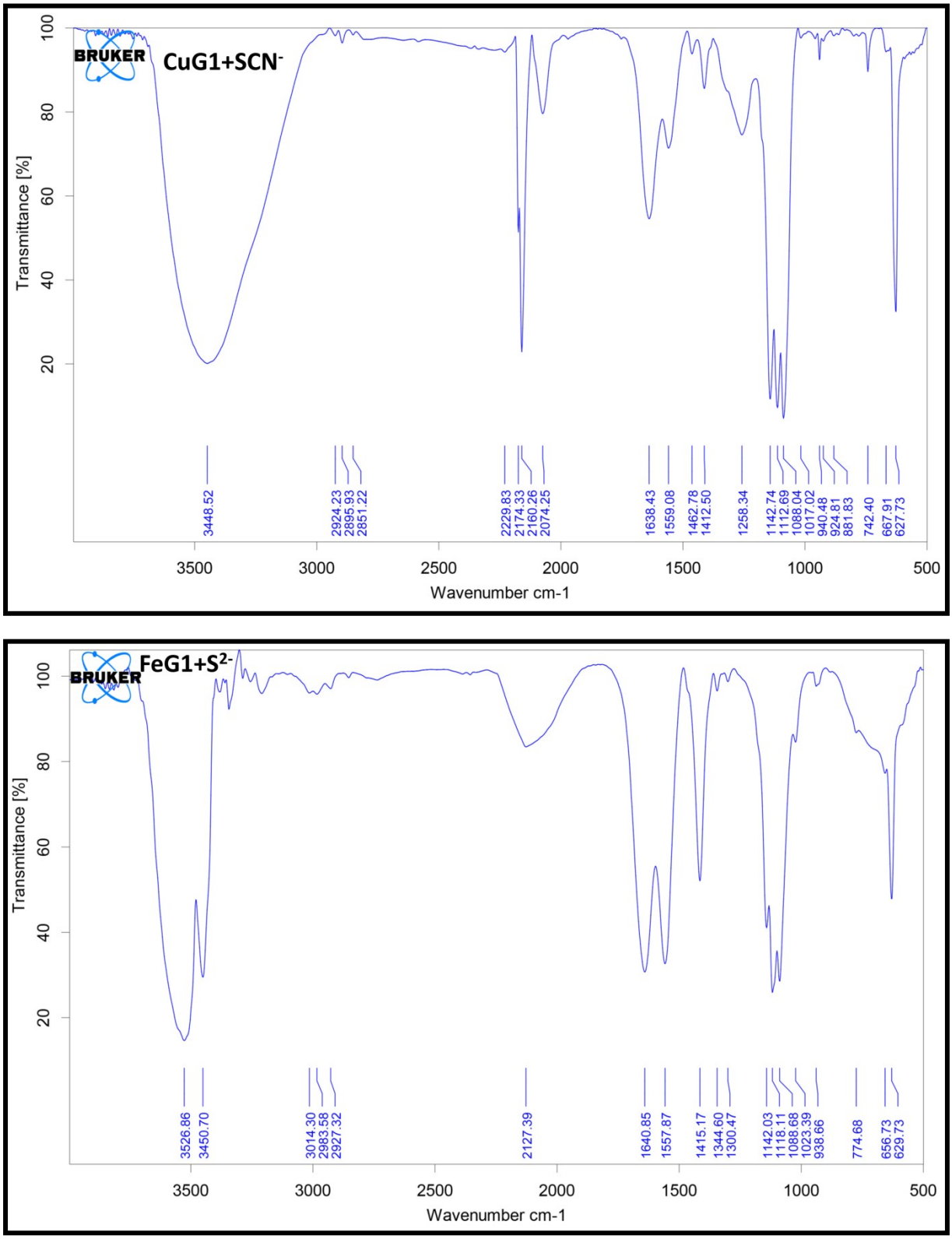


Fig. S14-S17. FT-IR spectra of xerogel of **ZnG1+Br^{-}**,**NiG1+CN^{-}**, **CuG1+SCN^{-}**, **Fe^{II}G1+S^{2-}**.

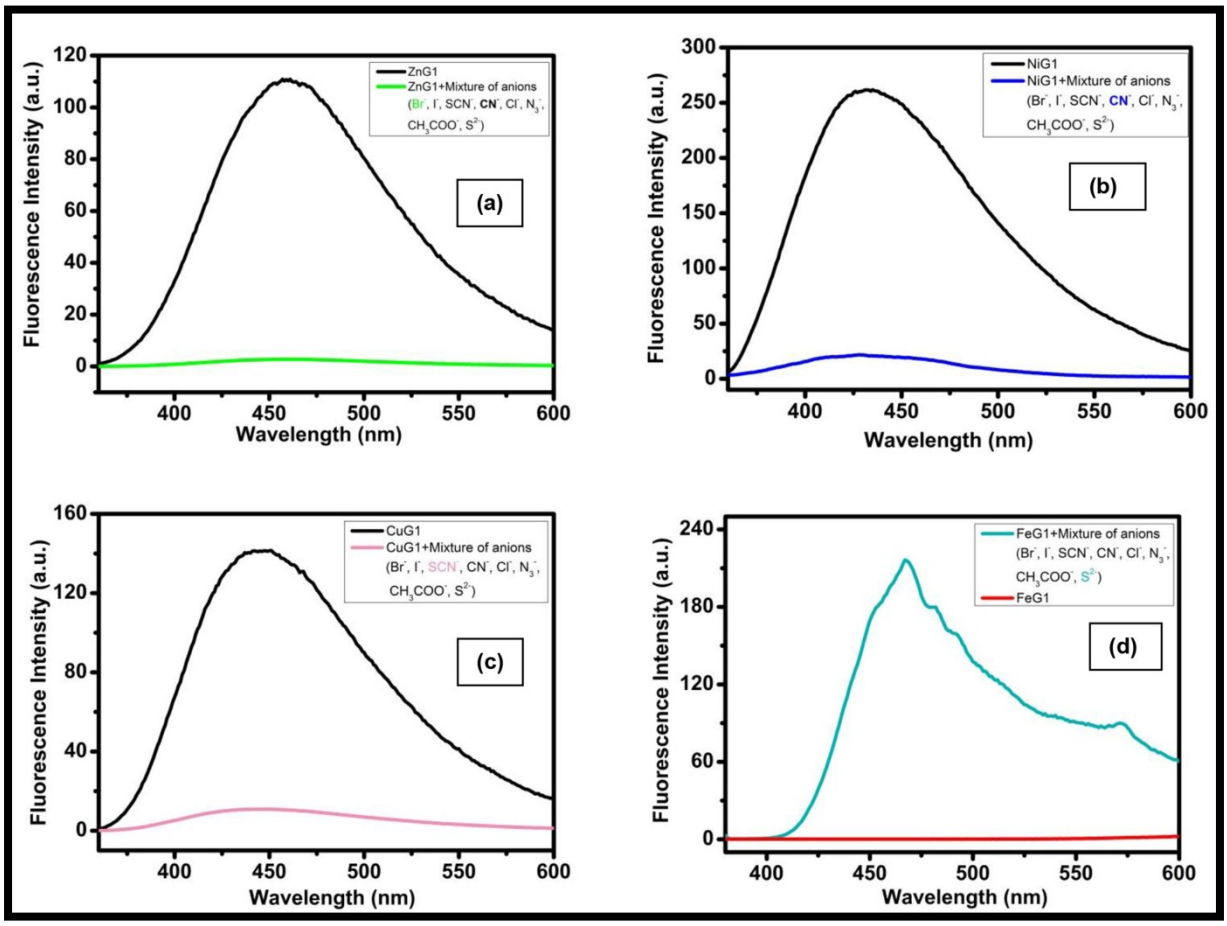
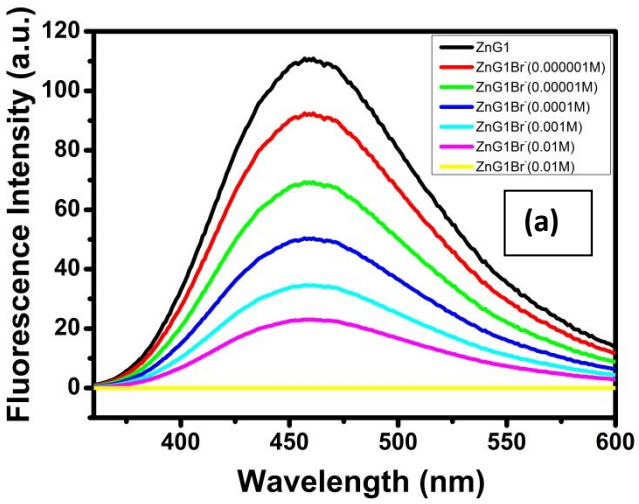
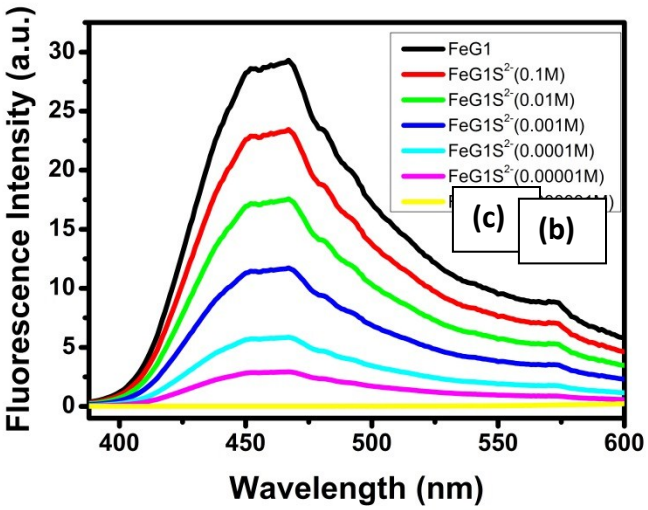


Fig. S18 Fluorescence spectra of (a) **ZnG1** (b) **NiG1** (c) **CuG1** (d) **FeG1** in the presence of mixture of anions at room temperature.





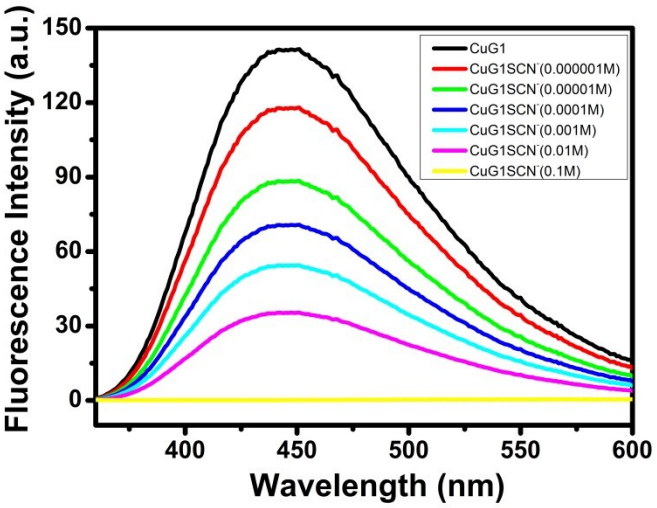


Fig. S19 (a) Fluorescence spectra of **ZnG1** with increasing concentration of **Br^-** (using 0.01M **KBr** water solution as the **Br^-** sources); (b) Fluorescence spectra of **NiG1** with increasing concentration of **CN^-** (using 0.01M **NaCN** water solution as the **CN^-** sources),(c) Fluorescence spectra of **CuG1** with increasing concentration of **SCN^-** (using 0.01M **NaSCN** water solution as the **SCN^-** sources); (d) Fluorescence spectra of **FeG1** with increasing concentration of S^{2-}(using 0.01M **Na_2S** water solution as the **S^{2-}** sources), λex = 350 nm.

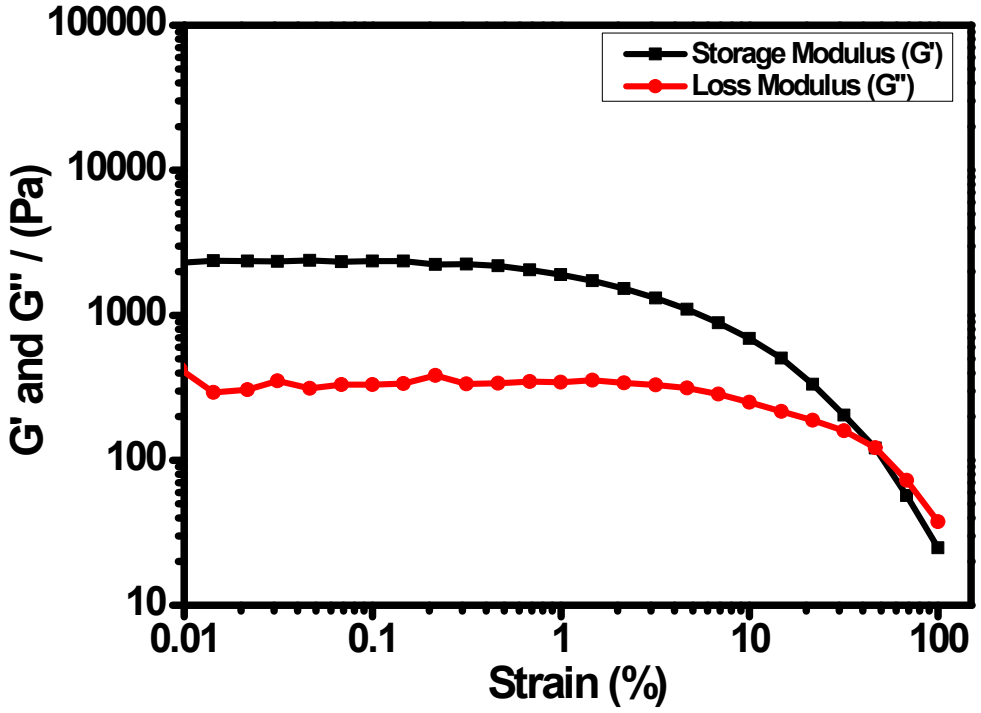


Fig. S20(a) Linear viscoelastic (LVE) property of **FeG1**.

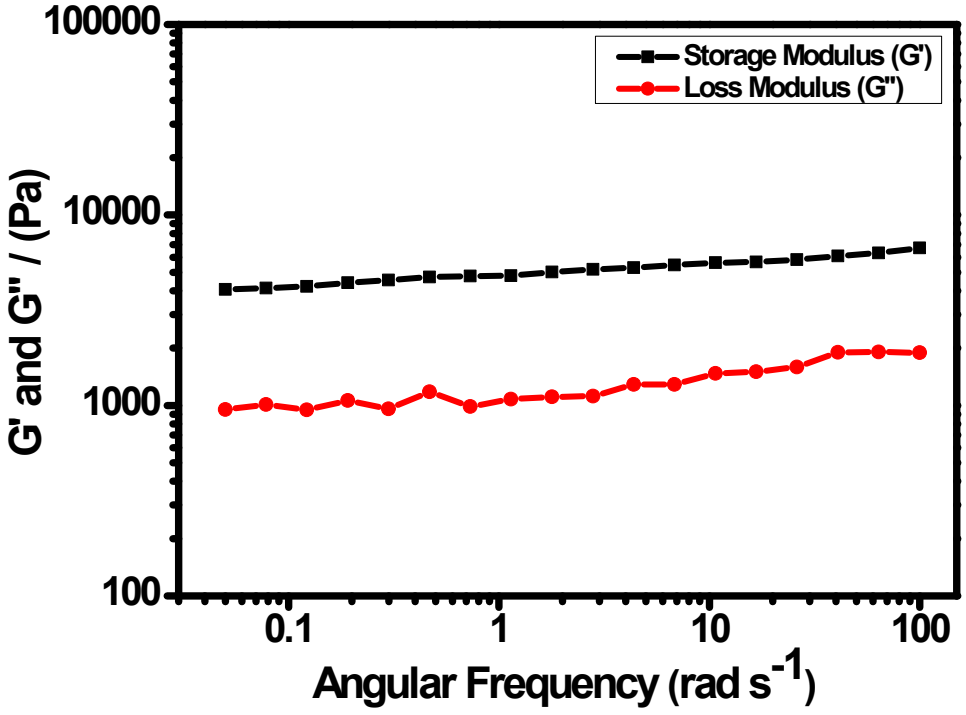


Fig. S20(b) The dynamic frequency sweep rheometry of **FeG1**. (Storage modulus G' is higher than the loss modulus G'').

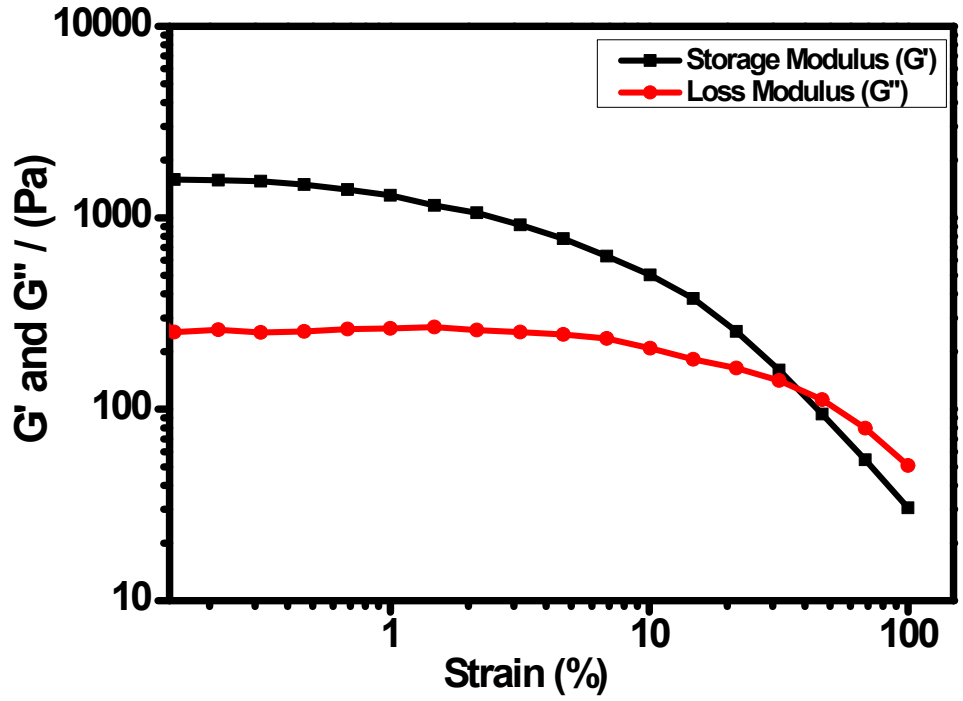


Fig. S21(a) Linear viscoelastic (LVE) property of **CuG1**.

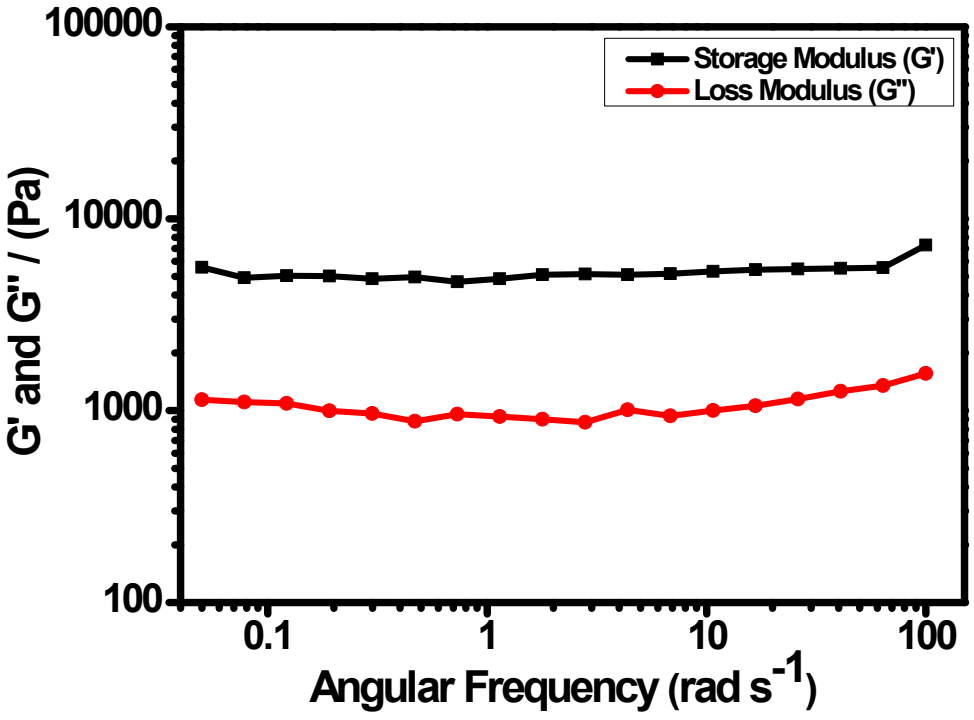


Fig. S21(b) The dynamic frequency sweep rheometry of **CuG1**. (Storage modulus G' is higher than the loss modulus G'').

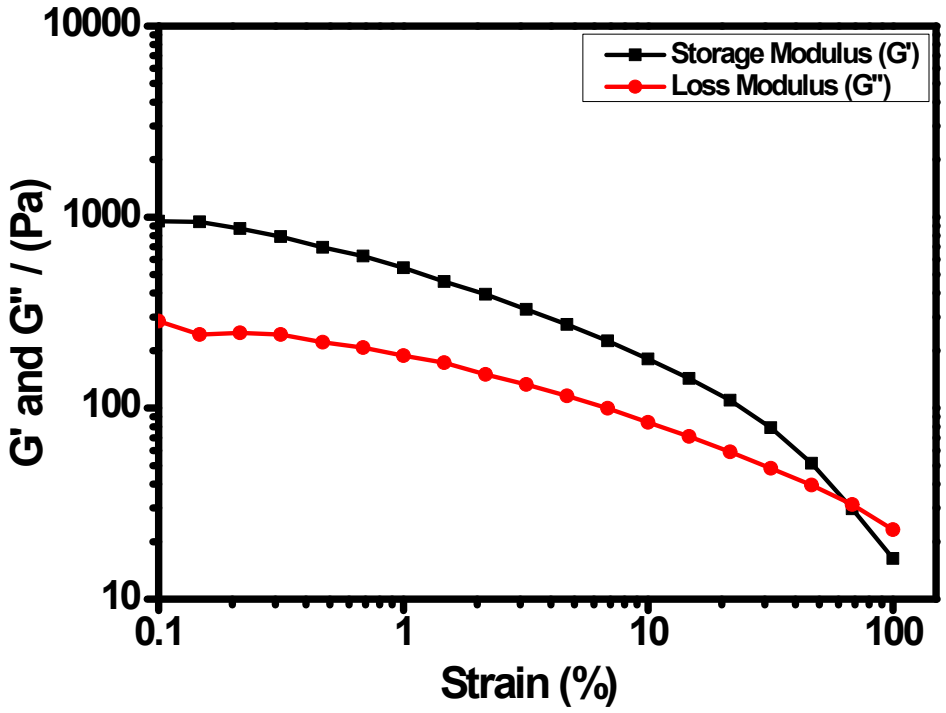


Fig. S22(a) Linear viscoelastic (LVE) property of **ZnG1**.

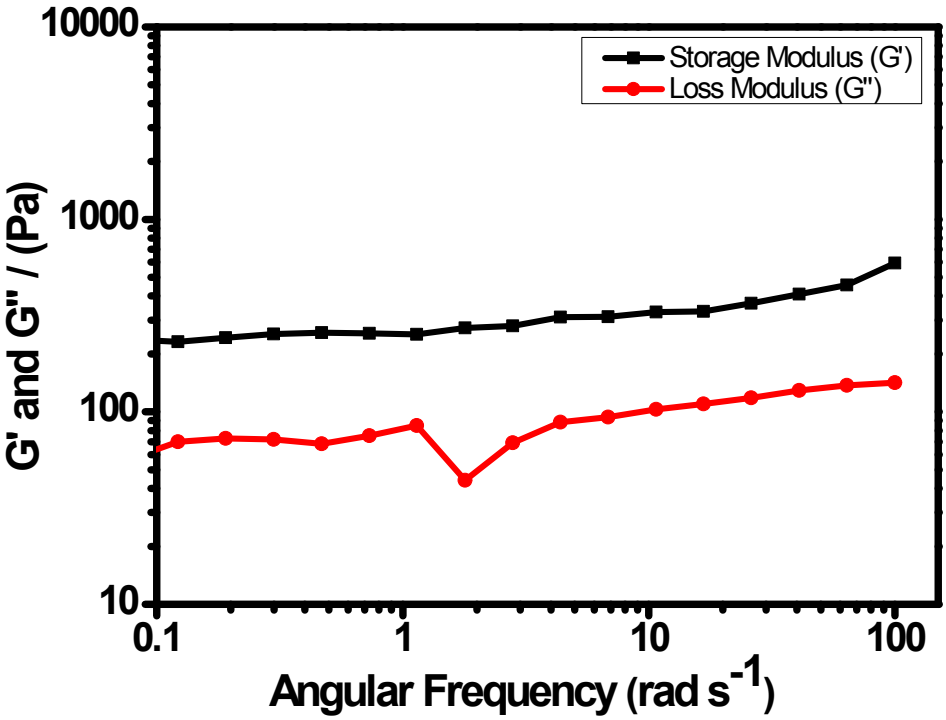


Fig. S22(b) The dynamic frequency sweep rheometry of **ZnG1**. (Storage modulus G' is higher than the loss modulus G'').

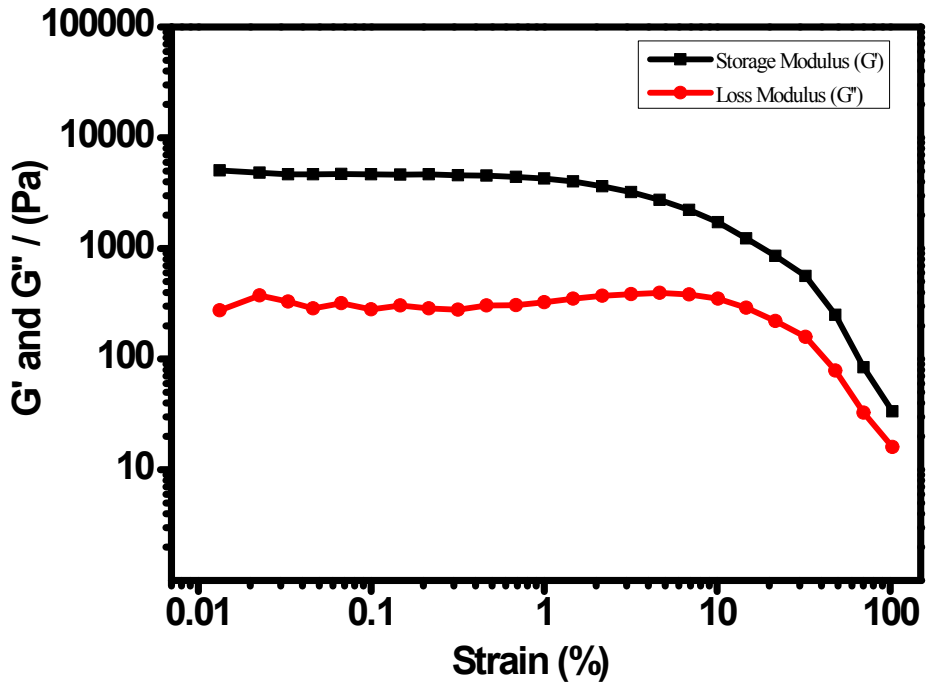


Fig. S23(a) Linear viscoelastic (LVE) property of **NiG1**.

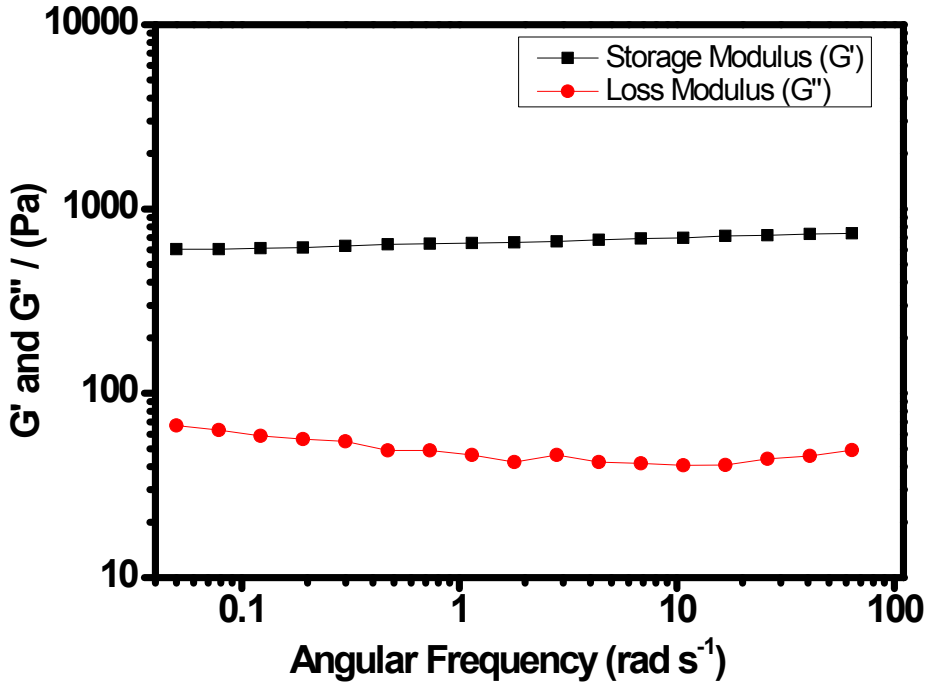


Fig. S23(b) The dynamic frequency sweep rheometry of **NiG1**. (Storage modulus G' is higher than the loss modulus G'').

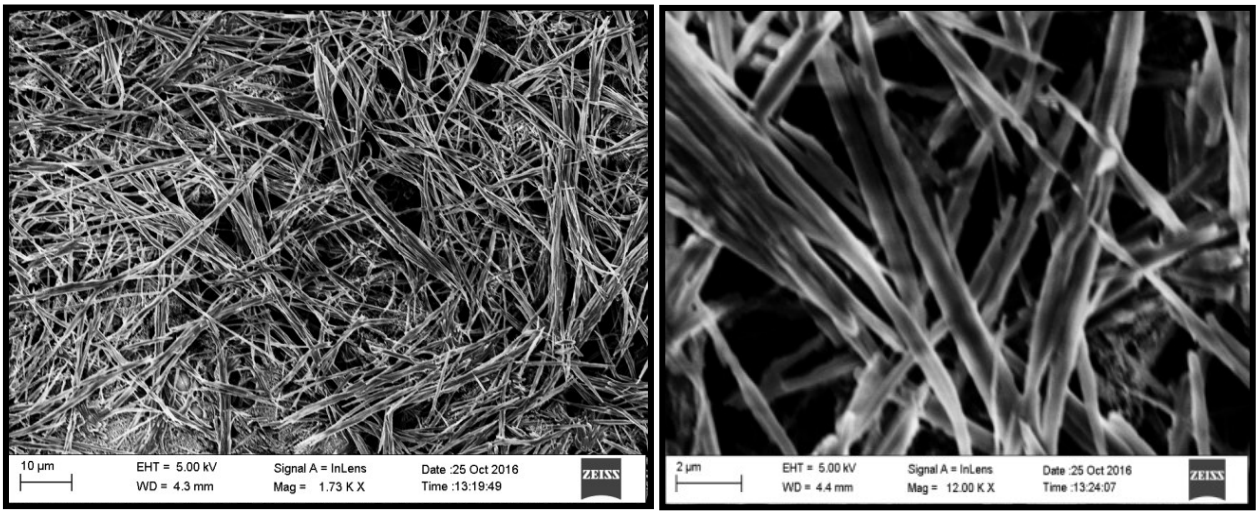


Fig. S24 SEM images of xerogel of **ZnG1.**

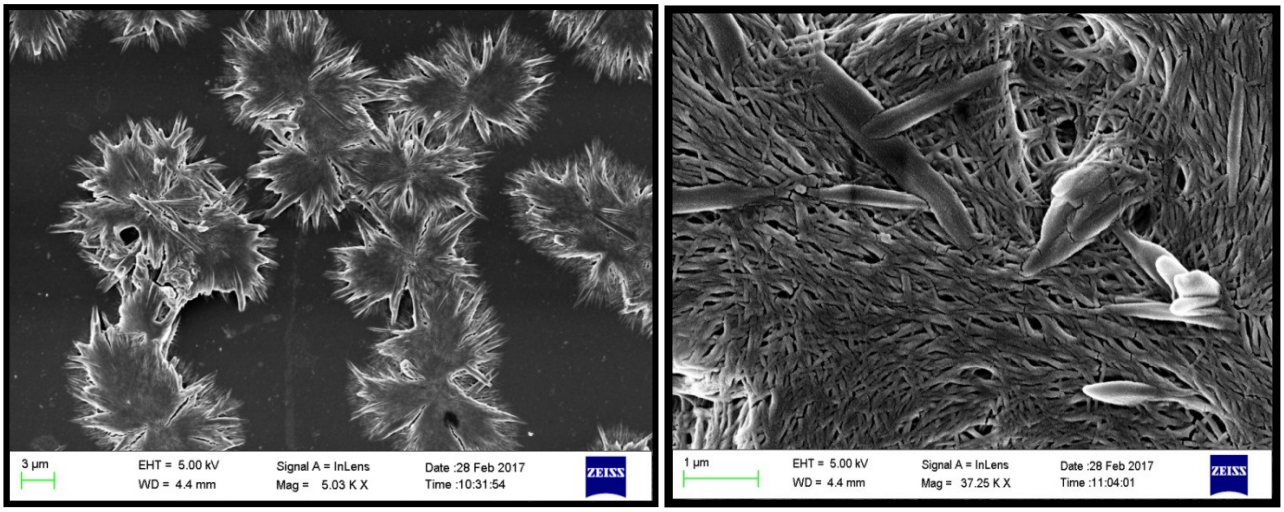


Fig. S25 SEM images of xerogel of **NiG1.**

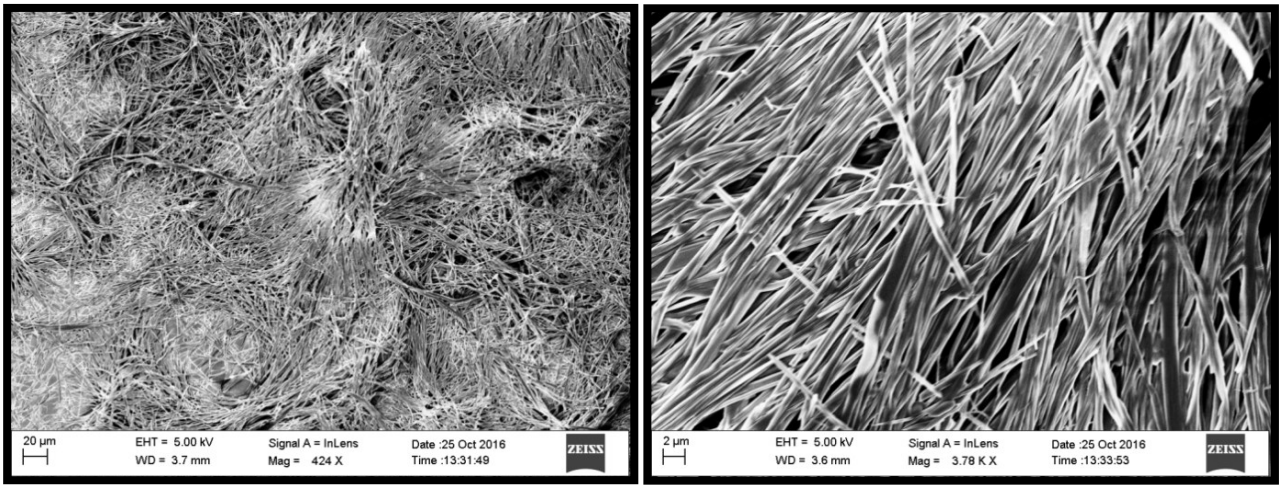


Fig. S26 SEM images of xerogel of **FeG1.**

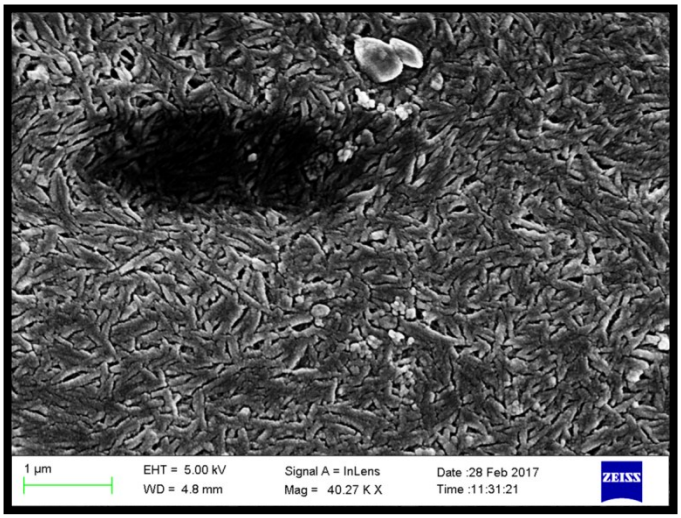


Fig. S27 SEM images of xerogel of **CuG1.**

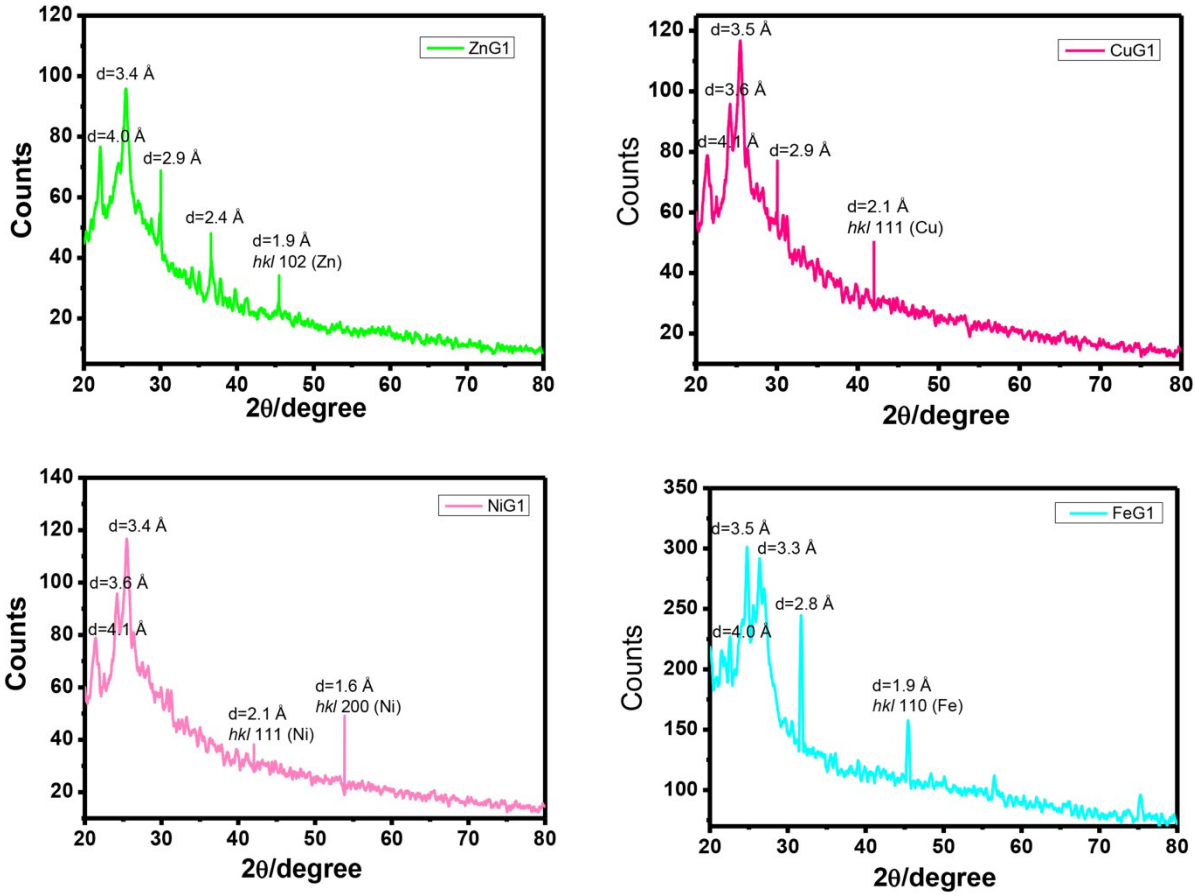


Fig. S28 Powder XRD patterns of xerogel of **FeG1**, **CuG1**, **ZnG1**, **NiG1**.

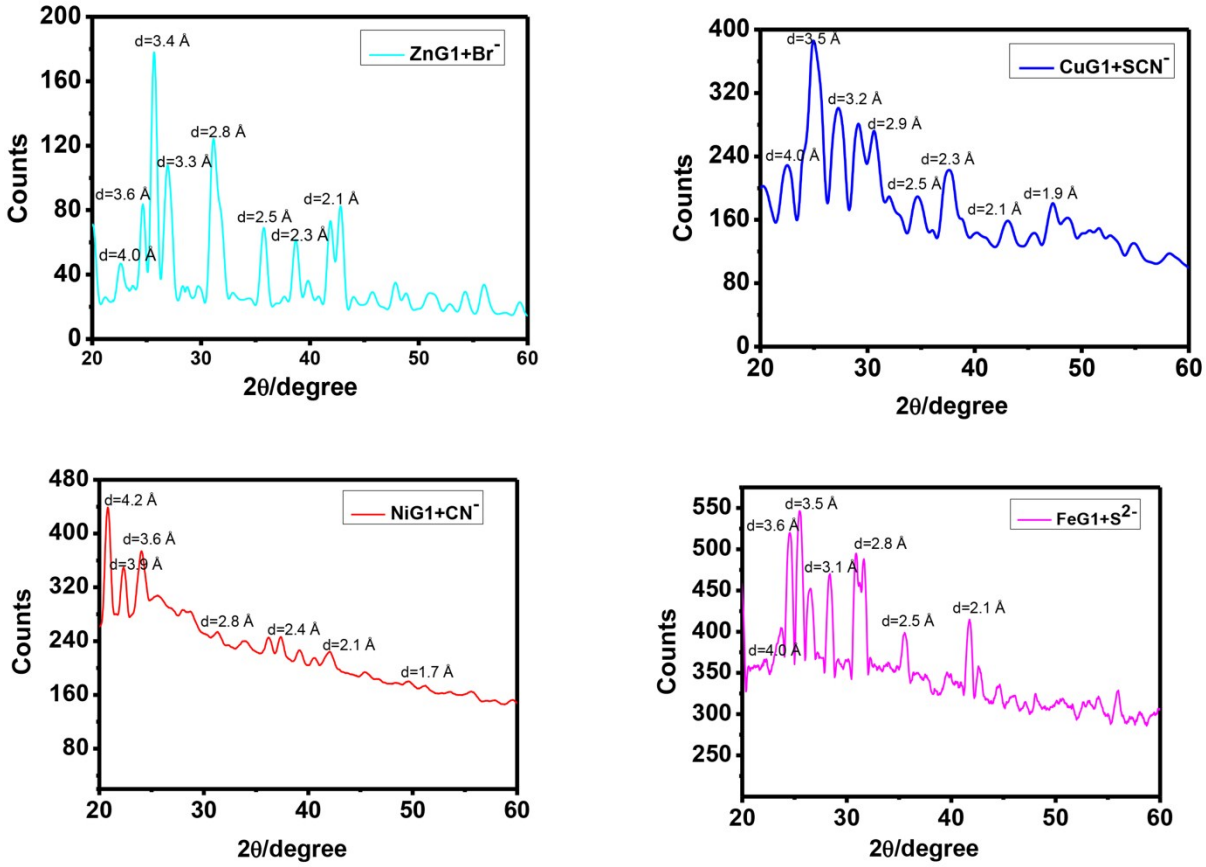


Fig. S29. Powder XRD patterns of xerogel of **ZnG1+Br**$^{-}$, **CuG1+SCN**$^{-}$, **NiG1+CN**$^{-}$, **FeG1+S**$^{2-}$.