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Supporting Information

Guest Dependent Dielectric Properties of Nickel(II)-Based Supramolecular Networks

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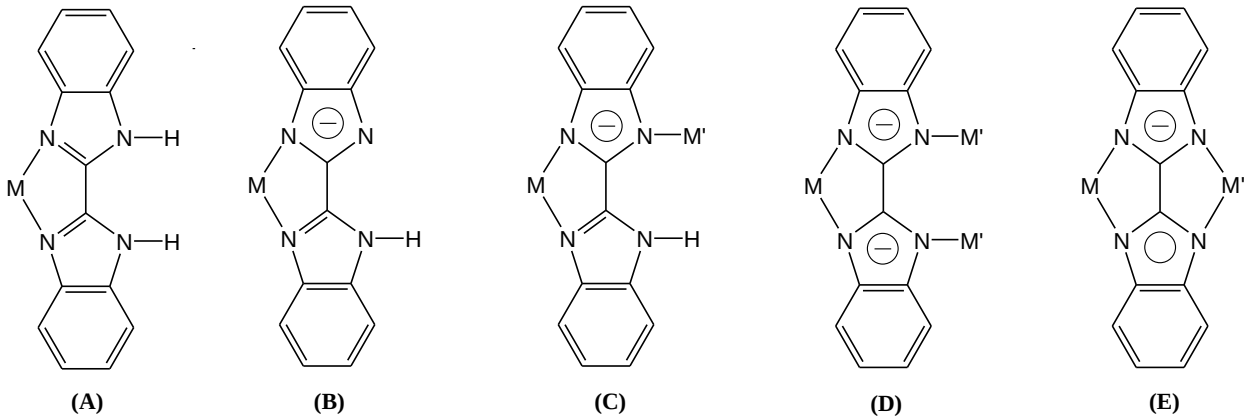

Scheme S1 Coordination modes of H_2bbim.

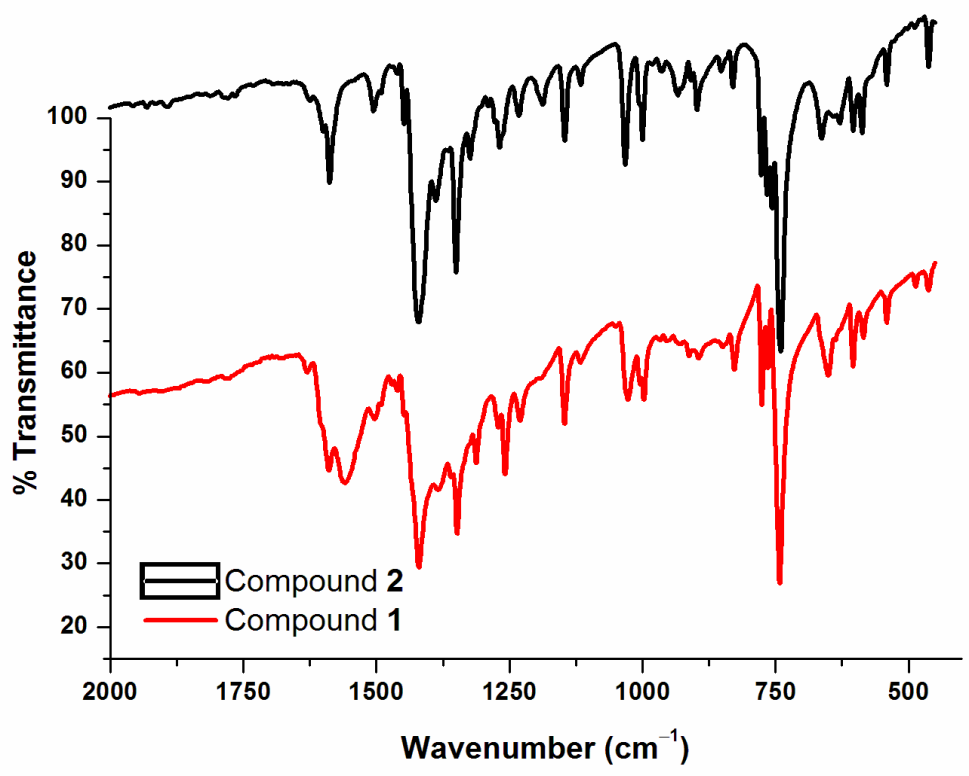

Fig. S1 FTIR spectra of compounds **1** and **2**.

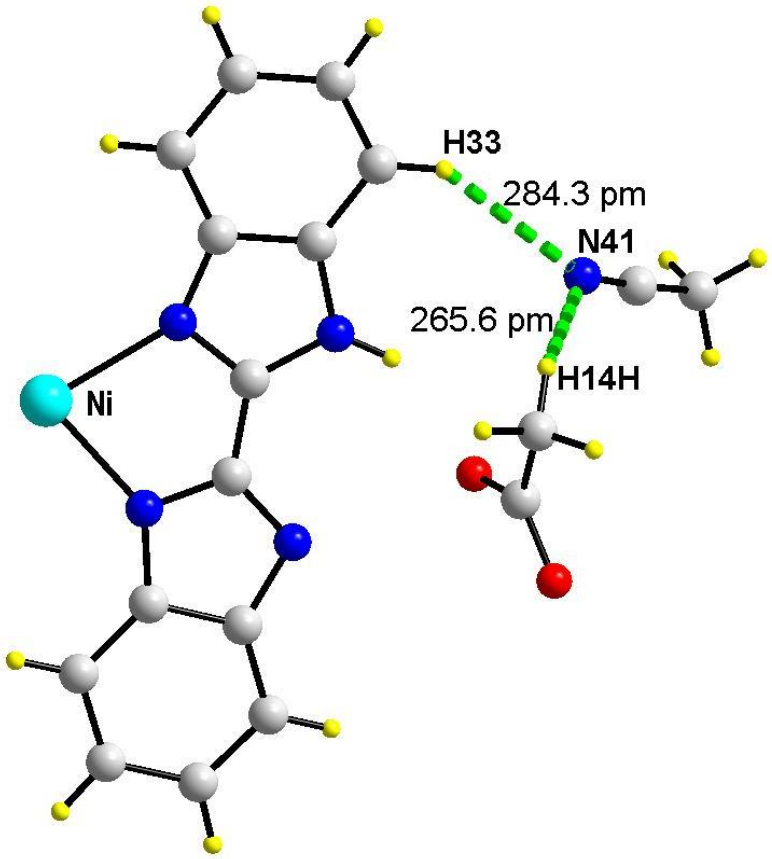

Fig. S2 Weak hydrogen bonding interactions (C–H···N) between the nitrogen atom (blue) of the CH_3CN molecule in **1** and C–H moieties of bisbenzimidazole ligand and acetate ion.

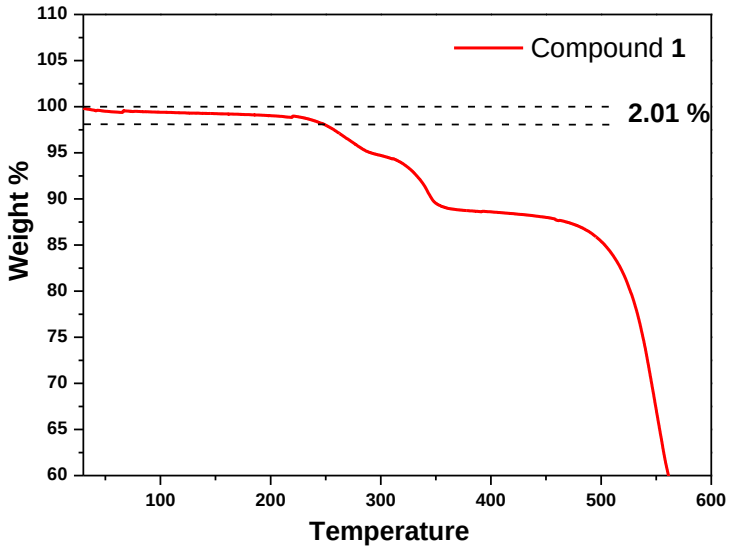

Fig. S3 Magnified view of the TGA curve for compound **1**.

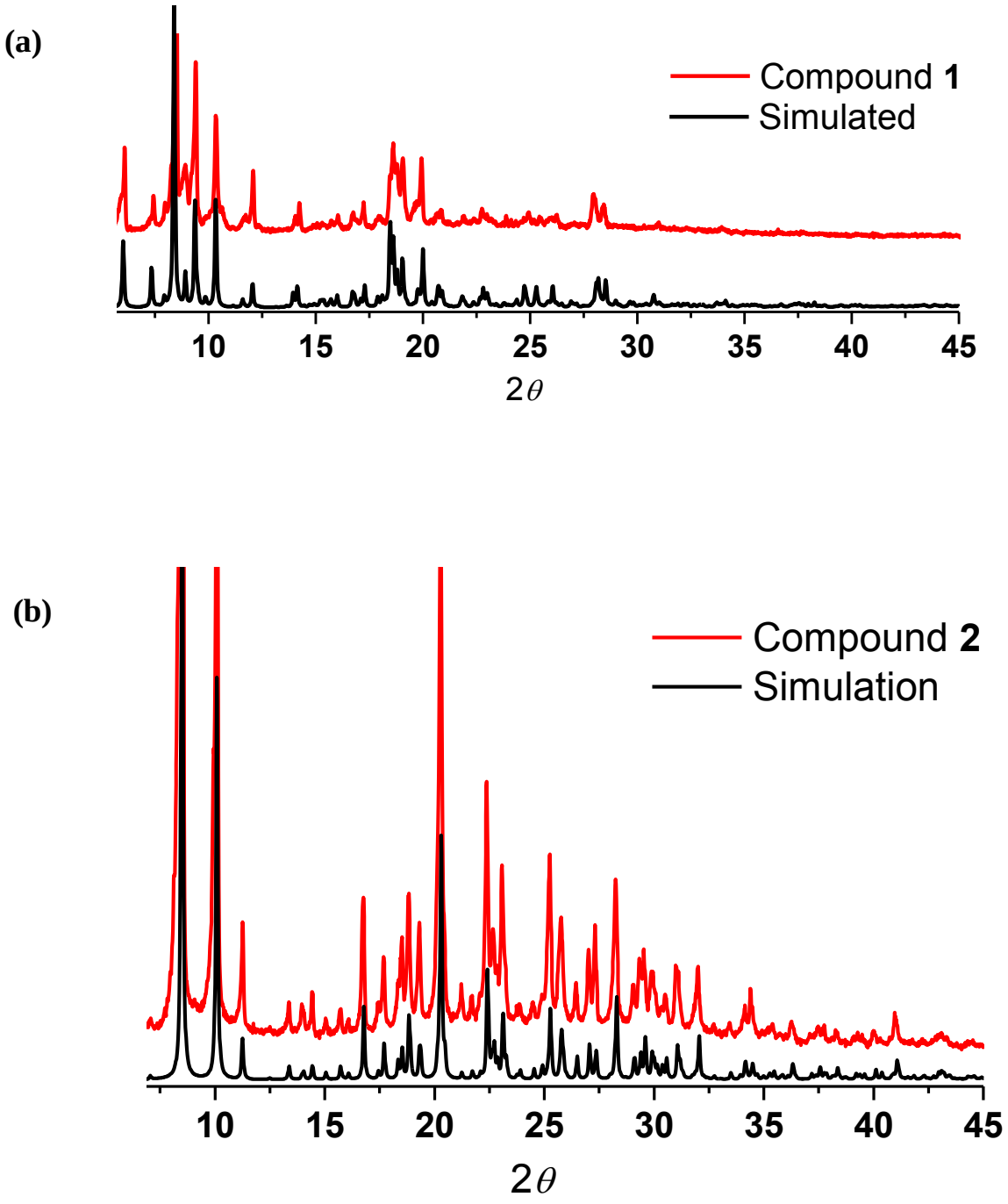

Fig. S4 (a) PXRD pattern of **1**, (b) PXRD pattern of **2**.

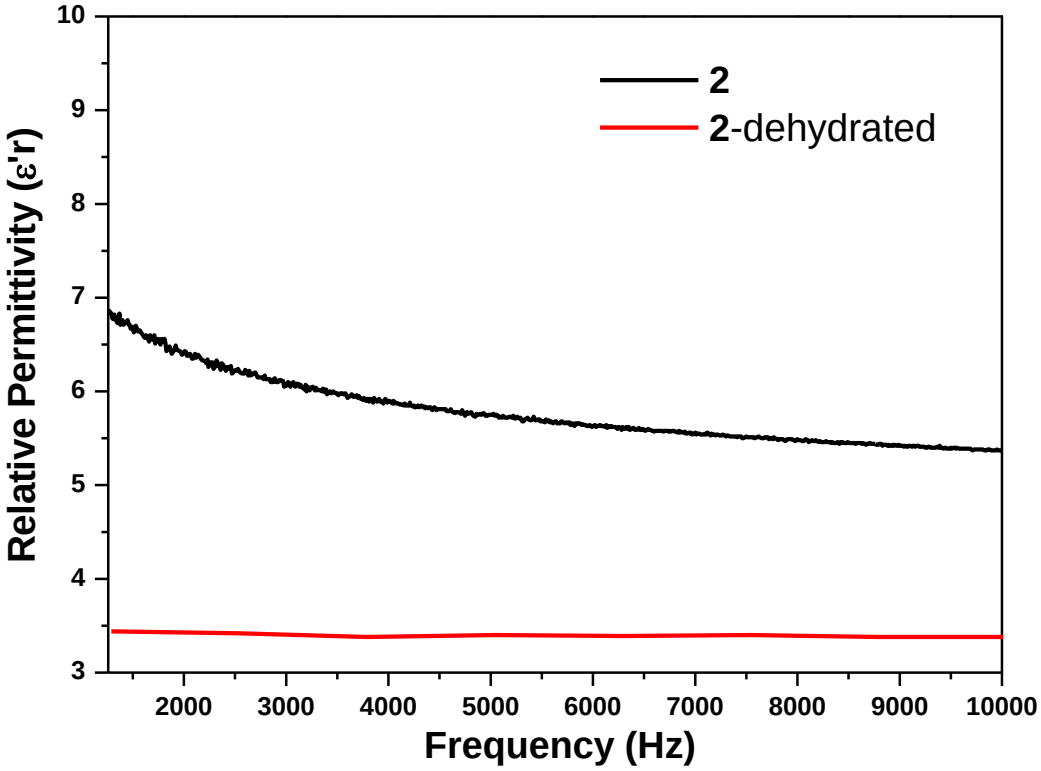

Fig. S5 Variation of dielectric constant in **2** on dehydration.

Table S1 Bond lengths (Å) and angles (°) around Ni(II) ion in **1**

Ni(1)–N(10)	2.102(4)	Ni(2)–N(4)	2.089(4)
Ni(1)–N(6)	2.110(4)	Ni(2)–N(13)	2.106(4)
Ni(1)–N(5)	2.114(5)	Ni(2)–N(14)	2.113(4)
Ni(1)–N(1)	2.115(4)	Ni(2)–N(17)	2.124(4)
Ni(1)–N(2)	2.135(4)	Ni(2)–N(18)	2.143(4)
Ni(1)–N(9)	2.169(4)	Ni(2)–N(3)	2.153(4)
Ni(3)–N(26)	2.085(4)	Ni(4)–N(34)	2.100(4)
Ni(3)–N(21)	2.091(4)	Ni(4)–N(37)	2.106(4)
Ni(3)–N(25)	2.110(4)	Ni(4)–N(23)	2.127(4)
Ni(3)–N(30)	2.119(4)	Ni(4)–N(24)	2.128(4)
Ni(3)–N(29)	2.149(4)	Ni(4)–N(33)	2.135(4)
Ni(3)–N(22)	2.169(4)	Ni(4)–N(38)	2.161(4)
N10–Ni1–N6	100.36(18)	N4–Ni2–N13	169.65(15)
N10–Ni1–N5	173.11(16)	N4–Ni2–N14	94.45(15)
N6–Ni1–N5	78.66(19)	N13–Ni2–N14	78.60(15)
N10–Ni1–N1	91.22(15)	N4–Ni2–N17	90.28(15)
N6–Ni1–N1	166.03(17)	N13–Ni2–N17	97.28(16)
N5–Ni1–N1	90.76(17)	N14–Ni2–N17	173.49(16)
N10–Ni1–N2	94.41(15)	N4–Ni2–N18	97.56(15)
N6–Ni1–N2	88.98(15)	N13–Ni2–N18	90.91(15)
N5–Ni1–N2	92.39(16)	N14–Ni2–N18	96.60(15)
N1–Ni1–N2	82.30(14)	N17–Ni2–N18	78.32(15)
N10–Ni1–N9	78.54(16)	N4–Ni2–N3	82.31(14)
N6–Ni1–N9	91.72(15)	N13–Ni2–N3	89.92(15)
N5–Ni1–N9	94.65(16)	N14–Ni2–N3	89.61(15)
N1–Ni1–N9	98.28(15)	N17–Ni2–N3	95.46(16)
N2–Ni1–N9	172.93(16)	N18–Ni2–N3	173.78(16)

N26–Ni3–N21	171.10(15)	N34–Ni4–N37	169.64(15)
N26–Ni3–N25	79.38(16)	N34–Ni4–N23	95.11(15)
N21–Ni3–N25	96.51(16)	N37–Ni4–N23	92.48(15)
N26–Ni3–N30	95.39(16)	N34–Ni4–N24	94.50(15)
N21–Ni3–N30	89.75(15)	N37–Ni4–N24	93.47(14)
N25–Ni3–N30	170.35(17)	N23–Ni4–N24	82.50(14)
N26–Ni3–N29	90.00(16)	N34–Ni4–N33	79.05(15)
N21–Ni3–N29	98.14(15)	N37–Ni4–N33	94.03(15)
N25–Ni3–N29	93.06(18)	N23– Ni4–N33	89.24(14)
N30–Ni3–N29	78.74(19)	N24–Ni4–N33	169.07(15)
N26–Ni3–N22	90.40(15)	N34–Ni4–N38	93.03(14)
N21–Ni3–N22	81.31(14)	N37–Ni4–N38	79.25(14)
N25–Ni3–N22	84.55(15)	N23–Ni4–N38	171.72(15)
N30–Ni3–N22	103.72(16)	N24–Ni4–N38	98.41(14)
N29–Ni3–N22	177.45(18)	N33–Ni4–N38	90.79(14)

Table S2 Bond lengths (Å) and angles (°) around Ni(II) ion in **2**

Ni(1)–N(4)	2.076(2)	Ni(1)–N(1)^{i}	2.108(2)
Ni(1)–N(4)^{i}	2.076(2)	Ni(1)–N(5)	2.149(2)
Ni(1)–N(1)	2.108(2)	Ni(1)–N(5)^{i}	2.149(2)

N4–Ni1–N4^{i}	169.76(12)	N1^{i}–Ni1–N5	92.38(8)
N4–Ni1–N1	79.40(8)	N4–Ni1–N5^{i}	91.91(8)
N4^{i}–Ni1–N1	93.79(8)	N4^{i} –Ni1–N5^{i}	96.04(8)
N4–Ni1–N1^{i}	93.79(8)	N1–Ni1–N5^{i}	92.38(8)
N4^{i}–Ni1–N1^{i}	79.40(8)	N1^{i} –Ni1–N5^{i}	169.48(8)
N1–Ni1–N1^{i}	97.35(11)	N5–Ni1–N5^{i}	78.21(13)
N4–Ni1–N5	96.04(8)		
N4^{i}–Ni1–N5	91.91(8)		
N1–Ni1–N5	169.48(8)		

Symmetry transformations used to generate equivalent atoms (i) 1.5-x, y, -z