

***Electronic Supplementary Information (ESI) for B610160G***

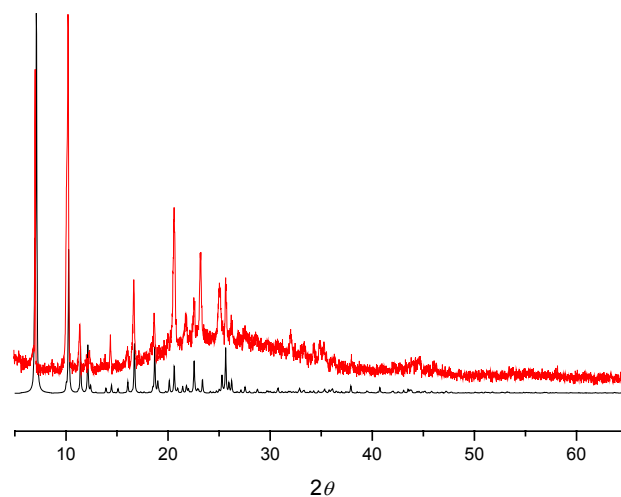
**Solvent-directed layered Co(II) coordination polymers with unusual solid-state properties: from a nanoporous framework to the dense polythreading 3-D aggregation**

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**Table S1** Possible hydrogen-bonded interactions in the crystal structures of **1–3**

| D–H...A       | D...A (Å) | H...A (Å) | D–H...A (°) | Symmetry code                |
|---------------|-----------|-----------|-------------|------------------------------|
| <b>1</b>      |           |           |             |                              |
| O1–H1...N2    | 2.867(4)  | 2.05      | 175         | $x - 1/2, -y + 3/2, z + 1/2$ |
| O2–H2...N6    | 2.915(4)  | 2.26      | 137         | $x, y + 1, z$                |
| C13–H13A...O2 | 3.301(4)  | 2.42      | 151         | $x, y - 1, z$                |
| <b>2</b>      |           |           |             |                              |
| C16–H16...N6  | 3.333(6)  | 2.41      | 173         | $x, -y, z - 1/2$             |
| <b>3</b>      |           |           |             |                              |
| C1–H1...N2    | 3.512(4)  | 2.61      | 164         | $x, -y, z + 1/2$             |
| C8–H8B...N9   | 3.409(6)  | 2.60      | 142         | $-x + 1/2, y - 1/2, z - 1$   |
| C16–H16B...N9 | 3.442(6)  | 2.59      | 148         | $x, y, z - 1$                |

**Fig. S1 XRPD patterns for 1: (black) calculated, and (red) as-synthesized.**



**Fig. S2 XRPD patterns for 3: (black) calculated, and (red) as-synthesized.**

