Supporting Information

Reversible iodine absorption of nonporous coordination polymer Cu(TCNQ)

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Fig. S1 Powder XRD patterns of (a) phase I and (b) phase II Cu(TCNQ) in the repeated absorption–desorption experiments. Triangles indicate peaks for CuI.

Fig. S2 Thermogravimetric traces of Cu(TCNQ)I₄ prepared by solid-state reactions of phase II Cu(TCNQ).
**Fig. S3** Powder XRD patterns of Cu(TCNQ)$_n$ ($n = 1, 2, 3,$ and 4) obtained from stepwise solid-state reactions of phase II Cu(TCNQ). Triangles indicate peaks for CuI.

**Fig. S4** Thermogravimetric traces of Cu(TCNQ)$_n$ ($n = 2$) formed by solid-state reactions of phase I Cu(TCNQ) and phase II Cu(TCNQ).

**Fig. S5** Thermogravimetric trace of Cu(TCNQ)$_4$ prepared by liquid-phase reaction of phase I Cu(TCNQ).
Fig. S6  Thermogravimetric trace of Cu(TCNQ)\textsubscript{I\textsubscript{n}} (n = 2.1) obtained from liquid-phase reaction of phase I Cu(TCNQ). TG trace after grinding phase II Cu(TCNQ) sample (n = 2.1) is also shown.

Fig. S7  Raman spectra of (a) phase I Cu(TCNQ) and (b) Cu(TCNQ)\textsubscript{I\textsubscript{4}} prepared by liquid-phase reaction of phase I.

Fig. S8  Temperature dependence of electrical conductivity of compaction pellet of Cu(TCNQ)\textsubscript{I\textsubscript{n}} (n = 3.7) prepared from phase I Cu(TCNQ) using liquid-phase reaction.