
Article:
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Supporting Information

High-performance symmetric supercapacitor based on new functionalized graphene oxide composites with pyrimidine nucleotide and nucleoside

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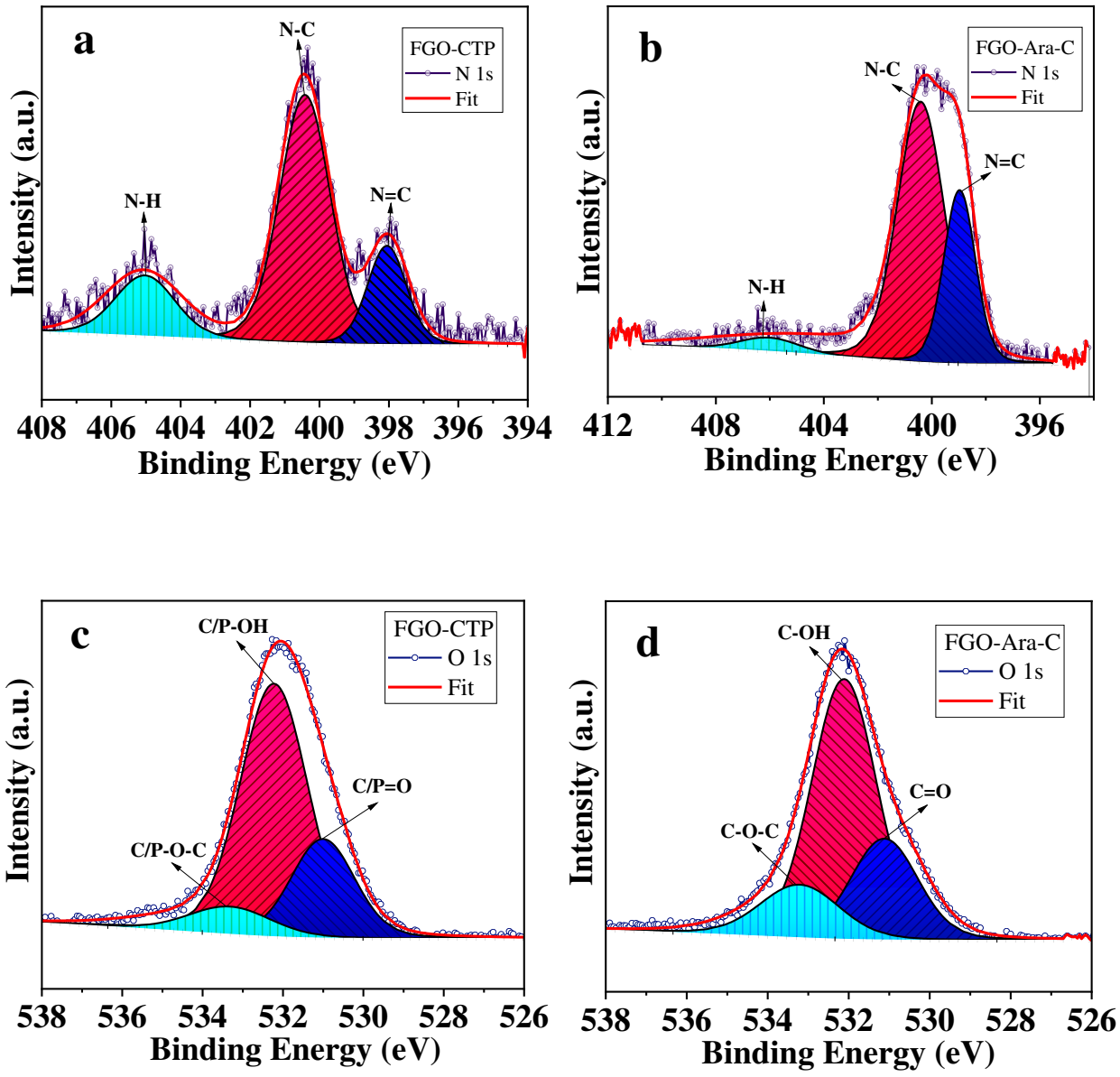
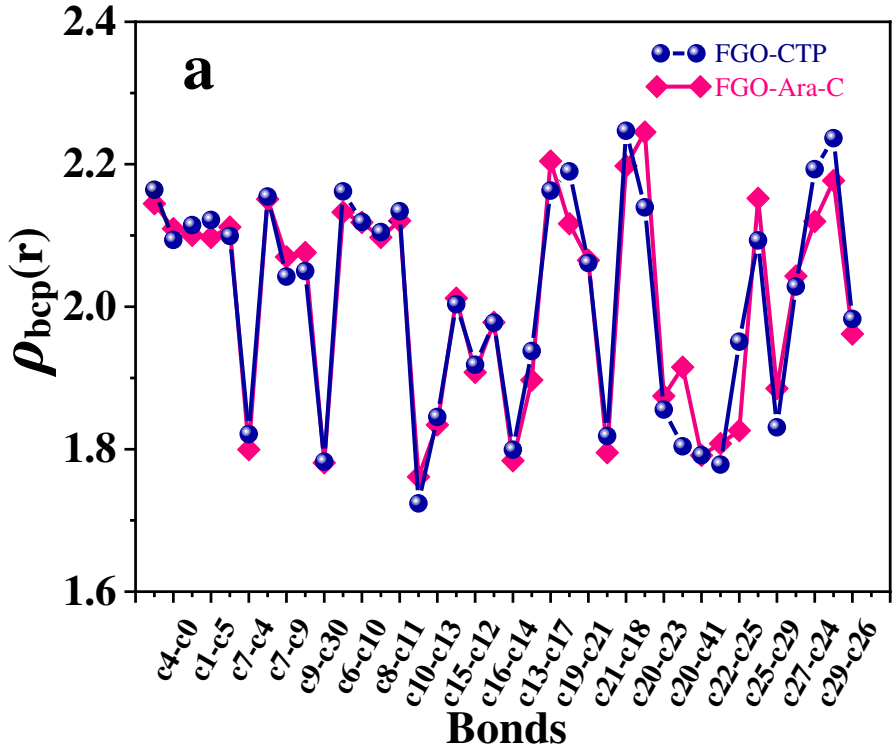


Fig. S1. XPS spectra of N 1s of as-synthesized (a) FGO-CTP and (b) FGO-Ara-C; Core level spectrum of O 1s as-synthesized (c) FGO-CTP and (d) FGO-Ara-C.

Table. S1. BET specific surface area, Total pore volume, BJH pore volume, BJH pore size, and average pore size of GO, FGO-CTP, and FGO-Ara-C.

	BET surface area (m^2g^{-1})	Total pore volume (cm^3g^{-1})	BJH pore volume (cm^3g^{-1})	BJH pore size (nm)	Average pore size (nm)
GO	24.188	0.026	0.018	1.213	4.268
FGO-Ara-C	33.759	0.072	0.049	1.213	8.511
FGO-CTP	45.551	0.093	0.066	1.215	10.998



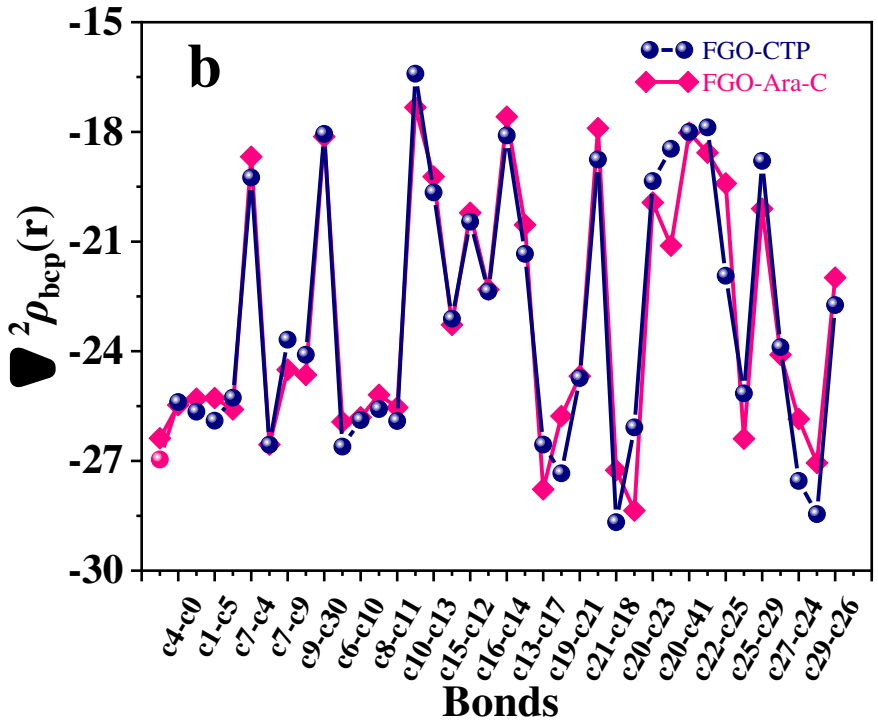


Fig. S2. The differences of (a) electron density $\rho_{bcp}(r)$ and (b) the Lapalacian of electron density $\nabla^2\rho_{bcp}(r)$ of carbon atoms of GO layer of FGO-Ara-C and FGO-CTP complexes.

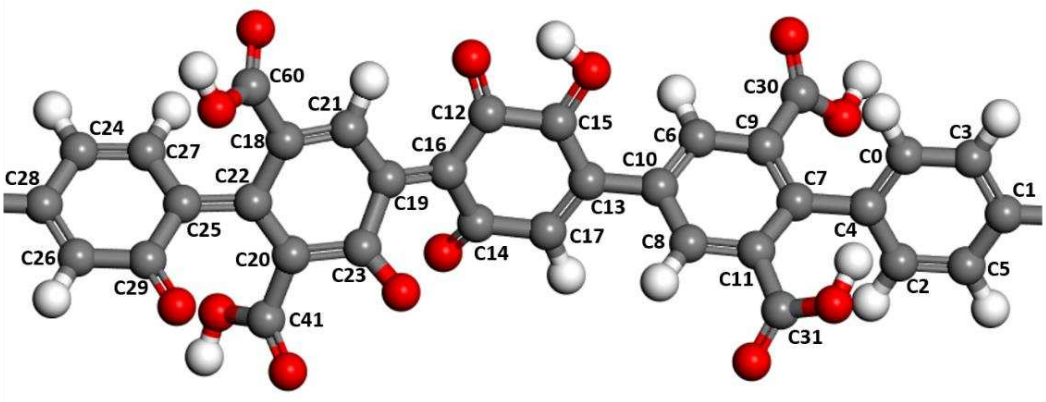


Fig. S3. The ball and stick model of GO layer used in the DFT calculation.

Table S2. The topological properties of electron density of carbon bonds on GO layer of FGO-Ara-C and FGO-CTP complexes obtained from DFT calculations. For finding the Carbon atoms refer to the Fig. S3.

Bonds	FGO-Ara-C $\rho_{bcp}(r)$	FGO-Ara-C $\nabla^2\rho_{bcp}(r)$	FGO-CTP $\rho_{bcp}(r)$	FGO-CTP $\nabla^2\rho_{bcp}(r)$
C0-C3	2.145	-26.379	2.164	-26.959
C0-C4	2.109	-25.471	2.094	-25.391
C1-C3	2.100	-25.299	2.114	-25.652
C1-C5	2.097	-25.280	2.122	-25.899
C2-C4	2.112	-25.589	2.099	-25.271
C4-C7	1.799	-18.680	1.821	-19.247
C2-C5	2.151	-26.552	2.155	-26.559
C7-C9	2.070	-24.504	2.042	-23.682
C7-C11	2.076	-24.649	2.050	-24.095
C9-C30	1.781	-18.127	1.782	-18.058
C6-C9	2.133	-25.935	2.162	-26.610
C10-C6	2.118	-25.808	2.119	-25.885
C8-C10	2.097	-25.190	2.105	-25.583
C8-C11	2.121	-25.540	2.134	-25.909
C11-C31	1.761	-17.331	1.724	-16.409
C10-C13	1.834	-19.223	1.845	-19.656
C13-C15	2.012	-23.275	2.003	-23.110
C12-C15	1.908	-20.210	1.918	-20.457
C12-C16	1.978	-22.313	1.978	-22.363
C14-C16	1.784	-17.584	1.799	-18.097
C14-C17	1.897	-20.543	1.938	-21.337
C13-C17	2.204	-27.774	2.163	-26.552
C16-C19	2.117	-25.771	2.190	-27.337
C19-C21	2.065	-24.681	2.061	-24.734
C19-C23	1.795	-17.899	1.818	-18.758
C18-C21	2.198	-27.255	2.247	-28.674
C20-C20	2.245	-28.359	2.139	-26.084
C20-C23	1.875	-19.933	1.856	-19.348
C18-C22	1.915	-21.111	1.804	-18.465
C20-C41	1.791	-18.023	1.792	-18.001
C18-C60	1.808	-18.569	1.778	-17.879
C22-C25	1.826	-19.410	1.951	-21.935
C25-C27	2.152	-26.394	2.093	-25.155
C25-C29	1.885	-20.102	1.831	-18.793
C24-C28	2.043	-24.095	2.028	-23.886
C24-C27	2.120	-25.855	2.193	-27.546
C26-C28	2.177	-27.056	2.237	-28.453
C26-C29	1.962	-21.985	1.983	-22.738

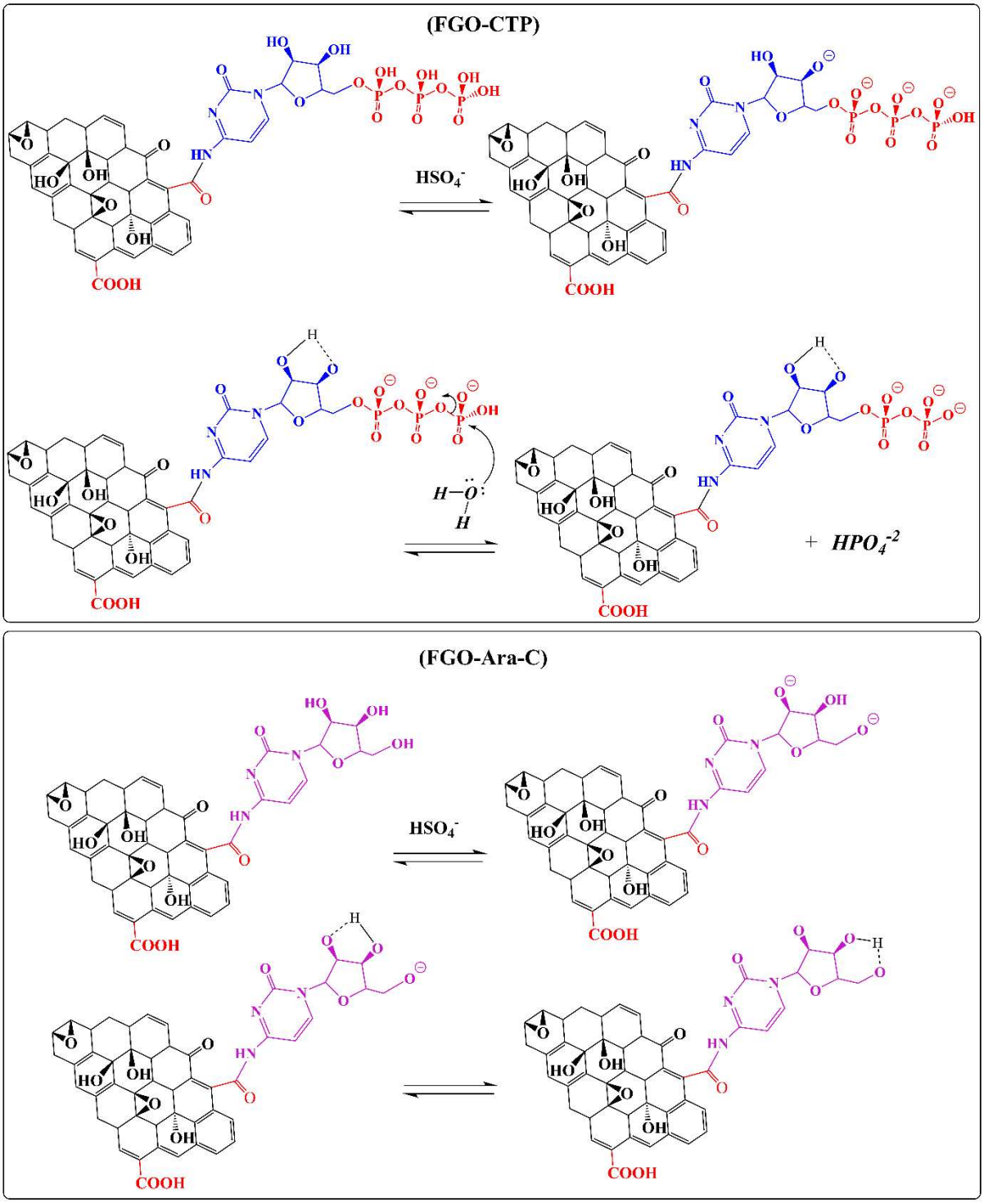


Fig. S4. Mechanism of redox reactions of FGO-CTP and FGO-Ara-C.

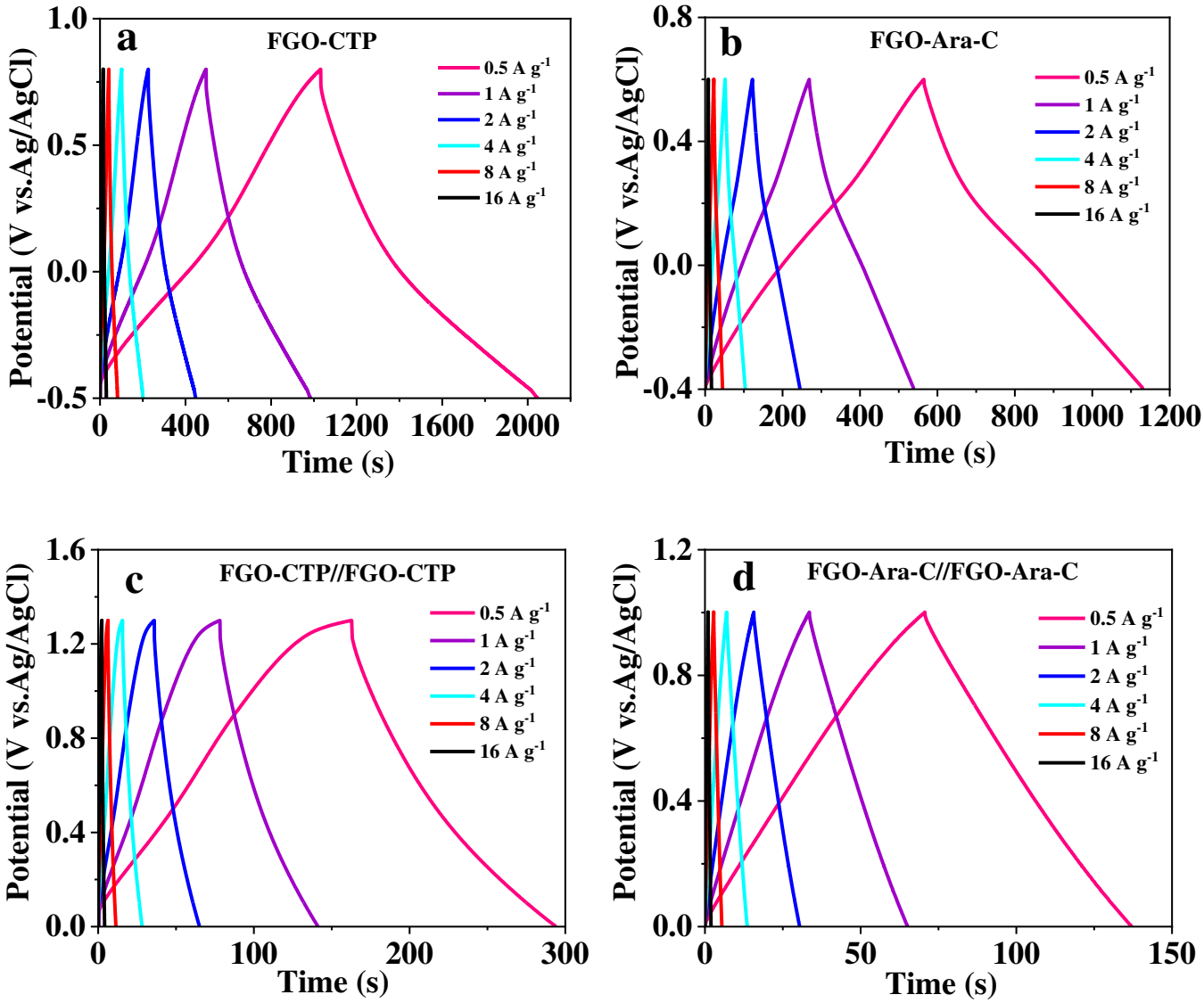


Fig. S5. GCD curves of (a) FGO-CTP, (b) FGO-Ara-C, (c) FGO-CTP//FGO-CTP, and (d) FGO-Ara-C//FGO-Ara-C at the current densities rates of 0.5-16 A g^{-1}.