SUPPORTING MATERIALS FOR

Sodium To Cesium Ions: A General Ladder Mechanism of Ion Diffusion in Prussian Blue Analogs

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Supplementary Section 1: Characterization Data

The scanning microscope images are presented in Figure 1. CuPB particles deposited on the surface of graphite foil present a dominant cubic morphology with a particle size ranging from 20 to 200 nm.

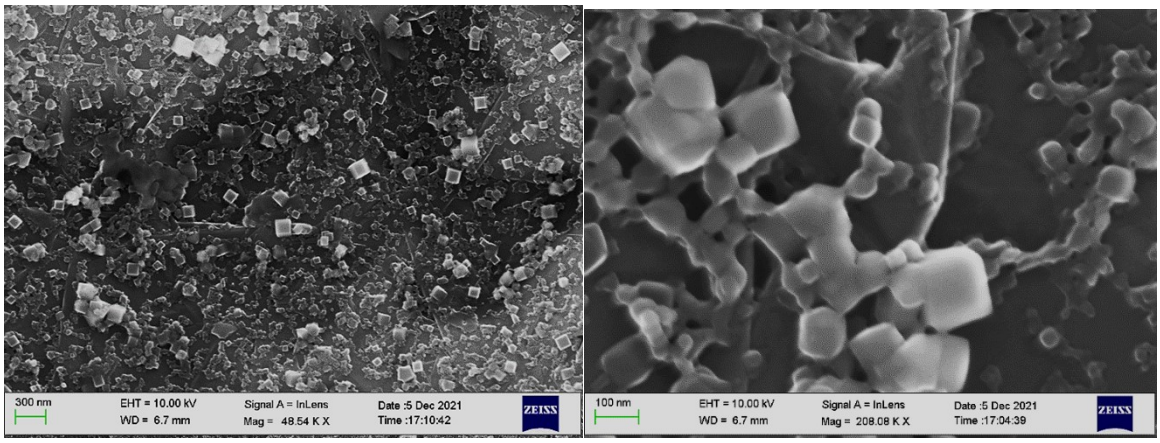

Figure 1. Scanning microscope images for the CuPB

Figure 2 shows the FTIR spectra of CuPB. It confirms the formation of CuPB particles on graphite foil. The characteristic band of Prussian Blue and its analog is present at 2081 and 2091 cm-1, associated to the stretching vibration of CN bonded to the two different transition metals in the structure (Fe and Cu). Two bands arise at 3360 and 1620 ascribed to the stretching and bending vibration of O-H groups due to the presence of interstitial water. [1]

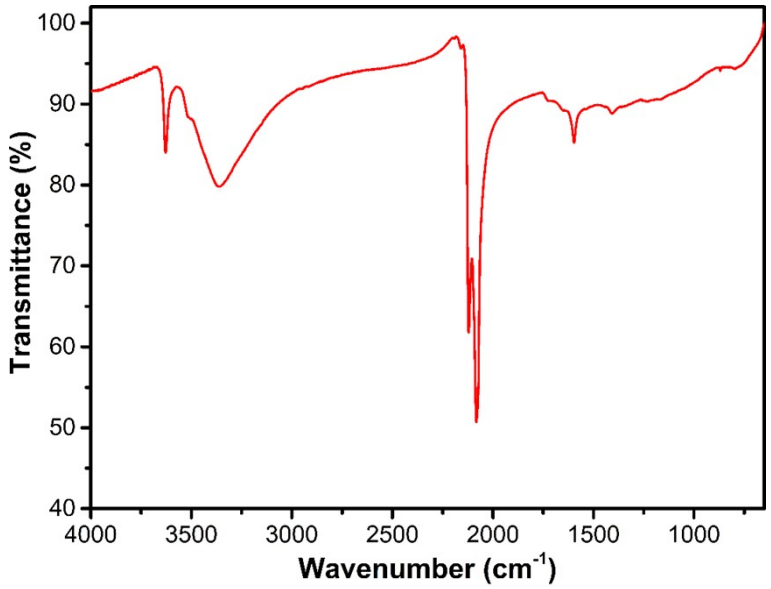

Figure 2. FTIR spectrum of CuPB.

Figure 3 shows the cyclic voltammogram of CuPb at different scan rates. It is important to notice that the intercalation process is governed by the redox transition of Cu^{2+}/Cu^{+}, whereas the transition Fe^{3+}/Fe^{2+} is inactive. It also shows the good reversibility of the redox couple Cu^{2+}/Cu^{+}, with a potential difference between the anodic and the cathodic reaction of 45 mV, which is related to the relatively short diffusion path, due to the size of the particles deposited.

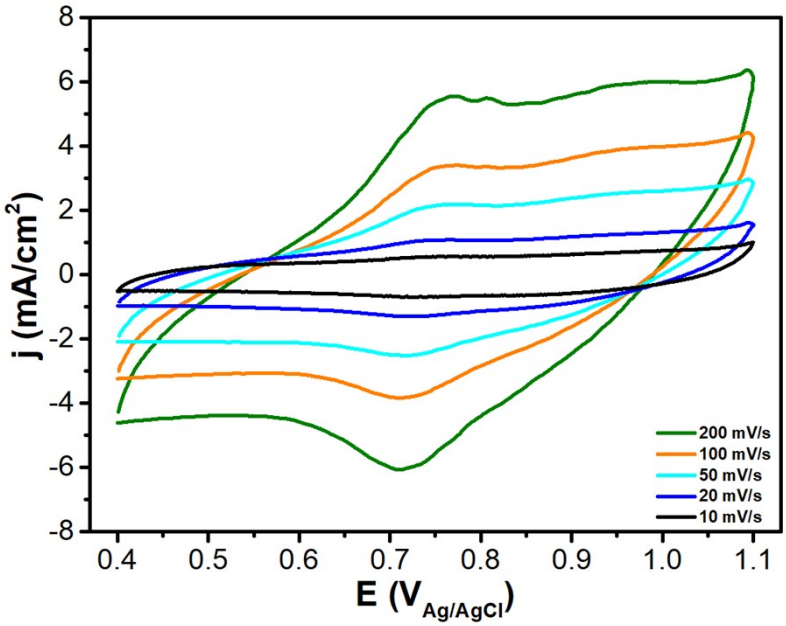

Figure 3. Cyclic voltammogram of CuPB.

Supplementary References

(1) Zhao, Y.; Liang, B.; Wei, X.; Li, K.; Lv, C.; Zhao, Y. A Core-Shell Heterostructured CuFe@NiFe Prussian Blue Analogue as a Novel Electrode Material for High-Capacity and Stable Capacitive Deionization. *J. Mater. Chem. A* **2019**, *7* (17), 10464–10474. https://doi.org/10.1039/c8ta12433g.