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A Study of the Dielectric Materials and Metal Organic Framework Nano Particles in Electrochemistry HOJUNG CHUN, BOKEUN KWON, JAMES KWON, Choice Research Group — In recent years, the development of nano technology has been arising in many technological fields, such as electro chemical fields. When the space between the plates of a capacitor is filled with an insulator, the capacitance of the capacitor is predicted to improve. In this research, the influence of multiple dielectric materials inserted in one capacitor on the electric field distribution in the capacitor system was studied. Patterns of the capacitances were found, and the electric charges and electric energy in the capacitor plates were calculated. A supercapacitor can hold hundreds of times more electrical density than a standard capacitor. In this study, we show how metal-organic frameworks (MOFs) can be integrated into supercapacitor devices, and how the flexibility with which their metal oxide and organic constituents can be varied and used to uncover their high capacitance and long lifecycle behavior. This study examines how metal-organic frameworks (MOFs) made as nanocrystals (nMOFs) can be successfully incorporated into electrical devices to be used as supercapacitors. Using this mechanism, a MOF with multiple metal ions and organic functionalities is suggested.

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