EFFECT METALORGANIC FRAMEWORK ON THE ELECTROCHEMICAL PERFORMANCE OF $LiCoPO_4$

Aboraia A. M.[1, 2], Shapovalov V. V.[1], Guda A. A[1],
Butova V. V[1], Soldatov A. V[1]

[1)] The Smart Materials Research Institute, Southern Federal University, Sladkova 178/24, Rostov-on-Don, Russia
[2)] Department of Physics, Faculty of Science, Al-Azhar University, Assiut 71542, Egypt
E-mail: a.m.aboraia@gmail.com

We coated the $LiCoPO_4$ by Mteal-organic framework. The $LiCoPO_4$/C@Mil-88 and $LiCoPO_4$/C@UiO-66 were synthesized via the microwave-assisted solvothermal route, and 100, 147 mA h/ g discharge capacity, respectively, was obtained in the first cycle.

$LiCoPO_4$ is an attractive material due to high voltage cathode materials but undergoes low conductivity, thus poor in electrochemical performance. To overcome this issue, we coated the $LiCoPO_4$ by Metal-organic framework. The $LiCoPO_4$/C@Mil-88 and $LiCoPO_4$/C@UiO-66 were synthesized via the microwave-assisted solvothermal route, and 100, 147 mAh / g discharge capacity, respectively, was obtained in the first cycle. The MOF acts as a source of both carbon and metal atoms, which improves conductivity.

A.M. Aboraia and AVS acknowledge RFBR for financial support according to the project No 19-32-90214.

1. RSC Advances, 2020, 10(58), pp. 35206–35213
2. Radiation Physics and Chemistry, 2020, 175, 108065