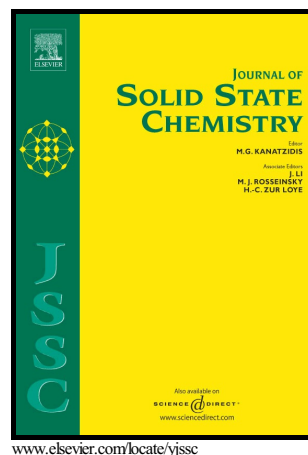


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# Cobalt-based metal organic framework with superior lithium anodic performance

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## ABSTRACT:

The reversible charging of a Co-1,4-benzenedicarboxylate MOF (Co-BDC MOF) prepared via an one-pot solvothermal method was studied for use as the anode in a Li-ion cell. It was found that this MOF anode provides high reversible capacities (1090 and 611 mAh g<sup>-1</sup> at current densities of 0.2 and 1 A g<sup>-1</sup>, respectively), and an impressive rate performance. Such an outstanding Li-ion storage property has not been reported previously for the LIB anodes within the MOFs category. Ex-situ X-ray photoelectron spectroscopy (XPS) and infrared spectroscopy (IR) studies of this material at different state of charge suggest that cobalt stays at Co<sup>2+</sup> state during discharge/charge process, so that in this case Li<sup>+</sup> may be inserted into the organic moiety without the direct participation of cobalt ions.

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<sup>1</sup> Equal Contributions.

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