In Situ Coating of Li[Ni_{0.33}Mn_{0.33}Co_{0.33}]O_2 Particles Enabling Aqueous Electrode Processing of LIB Cathodes

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Abstract: Aqueous processing of lithium-ion battery (LIB) electrodes bears the potential to notably decrease the battery's processing costs and paves the way for a sustainable and environmentally benign production (and recycling) of electrochemical energy storage devices. While this concept has already been adopted for the industrial production of LIB graphite anodes, the performance decay of transition metal oxide-based, cathode electrodes processed in aqueous environments is still an open issue. In this manuscript, we show as the addition of small quantities of phosphoric acid in the cathodic slurry yields to LiNMC electrodes with outstanding electrochemical performance in lithium-ion cells.

Keywords: Lithium-ion battery, phosphoric acid, aqueous, processing, green chemistry, carboxymethyl cellulose

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