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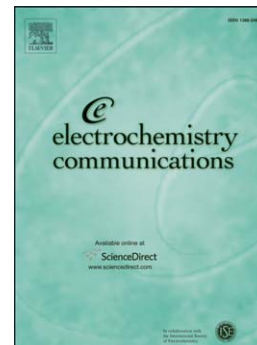
A Novel Method for Measuring the Effective Conductivity and the Contact Resistance of Porous Electrodes for Lithium-Ion Batteries

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A Novel Method for Measuring the Effective Conductivity and the Contact Resistance of
Porous Electrodes for Lithium-Ion Batteries

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The performance of a porous electrode is strongly related to its electrical properties, such as the effective conductivity of the coating and the contact resistance between the coating and the current collector. This work presents a new method to measure both the effective conductivity and the contact resistance with a single measurement. No preparation is necessary for this, other than cutting a disc shaped electrode and measuring the thickness of the coating. The method is applied to three different cathodes and an anode as a proof of concept.

Keywords: lithium-ion cell, porous electrode, effective conductivity, contact resistance

1. Introduction

The effective conductivity of lithium-ion battery electrodes has a strong impact on their performance and usable capacity. This becomes obvious by numerous works, dealing with improving the effective conductivity by (a) doping of the active material [1,2], (b) carbon

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