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Joe Fleming, Tazdin Amietszajew, Euan McTurk, Dave Greenwood, Rohit Bhagat

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Development and evaluation of in-situ instrumentation for cylindrical Li-ion cells  
using fibre optic sensors

Joe Fleming\*, Tazdin Amietszajew, Euan McTurk, Dave Greenwood, Rohit Bhagat

<sup>a</sup>WMG, University of Warwick, Coventry, UK

\*Corresponding author. j.fleming.1@warwick.ac.uk

## **Abstract**

This work demonstrates the development and evaluation of FBG optical fibre sensor technology for monitoring the distributed in-situ in-operando temperature of cylindrical 18650 lithium-ion cells. The influence of the sensing element on the electrochemical system was evaluated using EIS, CT scanning and cell cycling characterisation and was proven to be negligible. Furthermore, the FBG sensors were proven to be resistant to the strain imposed during the cell instrumentation procedure and the harsh chemical environment inside the Li-ion cells. The sensing

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