



Contribution ID: 296

Type: **Poster (+) Presentation**

Applying Reaction-Diffusion Models to Analyse Turing Patterns on Batteries

Tuesday, 1 June 2021 19:00 (1 hour)

This paper investigates the spatial patterns of metal deposit on battery cathode by electrodeposition during use. This is done by modelling with a reaction-diffusion system on a finite two-dimensional domain and examining the conditions required for Turing instability. Turing instability requires analysing the stability of the system allowing for diffusion and also without diffusion. Phase portraits are produced as well as basins of attractions for parameter values for the diffusion-less system. The full system is discretised using the Finite Element Method and then solved numerically. Tests are carried out to see the effects of different variable values on the resulting spatial patterns.

Time Block Preference

Time Block B (14:00-17:00 CET)

References

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Student Poster Award

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