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Battery Safety Science Symposium

August 11, 2021

Session III

Empirical and Modeling Studies: New Insights

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Rechargeable battery chemistries beyond Li-ion

To enable societal decarbonization, battery technologies that meet the application requirements in terms of safety, cost, energy density, performance reliability and sustainability are needed. Since commercially available battery technologies are not capable of meeting these demands, global research efforts have been increasingly focused on alternative battery chemistries such as those utilizing high capacity metal anodes such as Li and Mg. In this presentation, we will discuss our efforts pertaining to researching alternative battery chemistries, with focus on battery electrolytes. We will also outline remaining key challenges and offer future perspectives. [1,2,3]

References:

[1] Mohtadi, R., Orimo, S. Nature Reviews Materials, 2016, 2,16091, 1311.

[2] Mohtadi, R. Molecules, 2020, 25, 1791.

[3] Mohtadi, R., Mizuno, F. Beilstein J. Nanotechnol, 2014, 5, 1291.

About the speaker

Dr. Rana Mohtadi is a principal scientist at the materials research department at Toyota Research Institute of North America



TRINA. She is leading research activities for developing novel battery electrolyte chemistries. She obtained her Ph.D. in chemical engineering from the University of South Carolina where she researched Proton Exchange Membrane Fuel Cells. She has published in the fields of batteries, hydrogen storage materials and fuel cells. Notable recognitions include receiving the R&D100 award (2011) and being named in “40 under 40” by the automotive and Crain’s news (2014). In 2015, she has been recognized and showcased in the “We Run on Brain Power” initiative by the State Governor as a face of cutting edge innovation in the state of Michigan, USA.