Intrinsic Properties of Multiphase Nanostructured Ionic Conductors

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Abstract

Multiphase polymeric nanostructured conductors are of continued interest for their potential application in electrochemical systems. Multiphase materials can enable advance properties that cannot be achieved without structure. The effect of the nanostructure on ionic transport, charge transfer, and interfacial process, however, can be complex due to the inability of traditional 'bulk' experiments to directly correlate between the ionic phenomena and the structure properties. I will demonstrate that by using advance polymerization, self-assembly and nanofabrication methods we can design structured systems with deterministically defined ionic pathways, interfaces, and chemophysical properties that enable us to isolate, visualize and quantify ionic phenomena at the nanoscale level.

References

[1] Sharon, D.; Bennington, P.; Dolejsi, M.; Webb, M. A.; Dong, B. X.; de Pablo, J. J.; Nealey, P. F.; Patel, S. N. Intrinsic Ion Transport Properties of Block Copolymer Electrolytes. ACS Nano 2020, 14 (7), 8902–8914. Authors, Journal, Issue (Year) page

[2] Sharon, D.; Bennington, P.; Patel, S. N.; Nealey, P. F. Stabilizing Dendritic Electrodeposition by Limiting Spatial Dimensions in Nanostructured Electrolytes. *ACS Energy Lett.* 2020, 2889–2896.

Figures

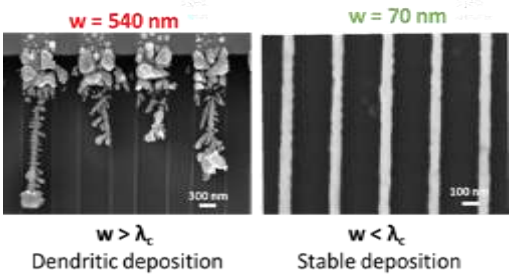

Figure 1: Stabilizing dendritic growth by nanostructured ionic conductors