

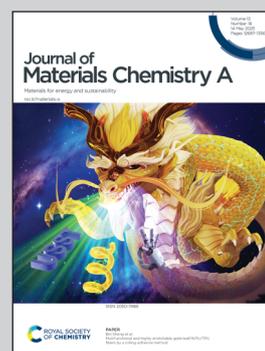
Showcasing research from Dr. Shi Hyeong Kim's laboratory, Textile Innovation R&D Department, Korea Institute of Industrial Technology, Ansan, Republic of Korea.

Synergistic electrochemical properties of conductive additives with 1D-2D carbon networks

Our novel 1D carbon nanoscroll (CNS) and 2D reduced graphene oxide (rGO) composite overcomes limitations of conventional conductive additives. The unique 1D CNS structure prevents rGO aggregation, reduces viscosity and increases the conductive binder domain (CBD), serving as an active surface for electron transport and ion diffusion. The rGO/CNS network facilitates point-to-line contact, significantly enhancing ion and electron transport efficiency. Compared to NMC cathodes with Ketjenblack and rGO, our cathode shows superior discharge capacity, rate performance, cycling stability, and rate of capacity increase.

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See Youngbok Lee, Shi Hyeong Kim *et al.*, *J. Mater. Chem. A*, 2025, **13**, 12968.