

## Ex-Situ Pore Formation for an Enhanced Li-Ion Diffusion using Mixed Polymer Matrix for Battery Applications

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Several studies have dealt with fabrication of carbon nanotube (CNT) fiber composites as an excellent material for Li-ion battery application. However, CNT can easily move within electrolyte solution during cycling. In the absence of support, CNT strands also tend to repel one another by virtue of Van Der Waals. Thus, an electrospun CNT containing nanofibers were fabricated to prevent migration and formation of large CNT particles. In this study, mixed polymer solution was employed to fabricate a free-standing electrode with high CNT loading (ca. 50–75%, based on polymer wt%). Hence, it exhibited outstanding capacity of 1200 mAh/g at 0.2C with consistent stability under higher current density (ca. 1.6C) for up to 200 cycles without any significant capacitance loss. The performance is attributed to the structural support by the polymer and pores formed on the surface. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning (NRF-2016R1C1B2008694).