

Abstract Submitted  
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**Polymer-derived Ceramic SiCN-MoS<sub>2</sub> Nanosheet Composite for Lithium Ion Battery Anodes**<sup>1</sup> ROMIL BHANDAVAT, GURPREET SINGH, Kansas State University — We demonstrate synthesis of a novel SiCN-MoS<sub>2</sub> nanosheet composite for use as Li-ion battery anode for high power applications. The nanosheet composite was prepared by thermal decomposition of polysilazane (SiCN precursor) on exfoliated MoS<sub>2</sub> surfaces. The morphology and chemical structure was studied using a range of spectroscopy techniques that revealed a sidewall functionalization of exfoliated MoS<sub>2</sub> by the polymeric precursor. The thermodynamic stability of SiCN-MoS<sub>2</sub> nanosheets was also confirmed by thermo-gravimetric analysis (1000 degree C). Batteries assembled using MoS<sub>2</sub>-SiCN nanosheets as active anode material showed that lithium can be reversibly intercalated in the voltage range of 0-2.5 V with first cycle discharge capacity of 620 mAh/g at a current density of 100 mA/g.

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