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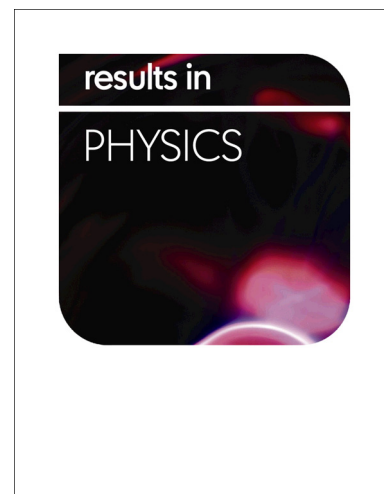
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**Preparation of Titanium nitride nanomaterials for electrode and application in
energy storage**

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Abstract

The Titanium nitride was made by the carbamide and titanate chloride precursors. XRD results indicate that the precursor ratio N:Ti 3:1 leads to higher crystallinity. SEM and EDX demonstrated that Ti and N elements were distributed uniformly with the ratio of 1:1. The TiN used as the electrode material for supercapacitor was also studied. The specific capacities were changed from 407 F.g⁻¹ to 385 F.g⁻¹, 364 F.g⁻¹ and 312 F.g⁻¹, when the current densities were changed from 1 A.g⁻¹ to 2 A.g⁻¹, 5 A.g⁻¹ and 10 A.g⁻¹, respectively. Chronopotentiometry tests showed high coulombic efficiency. Cycling performance of the TiN electrode was evaluated by CV at a scanning rate of 50 mV. s⁻¹ for 20,000 cycles and there was about 9.8 % loss. These results indicate that TiN is a promising electrode material for the supercapacitors.

Key words: Energy storage; Nanomaterials; Anode; Titanium nitride; Supercapacitors.

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