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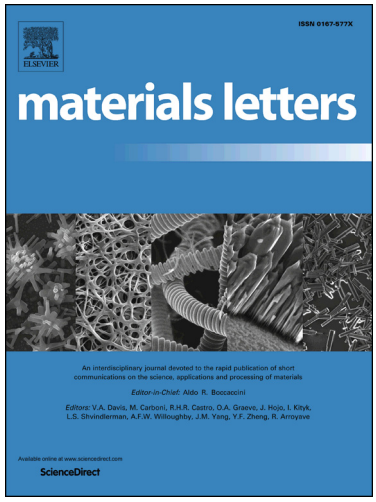

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A self-sacrificed template synthesis of porous N doped carbon nanosheets and their electrochemical properties

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Abstract:

N-doped porous carbon nanosheets were prepared from glucose with g-C_3N_4 derived from dicyandiamide as a self-sacrificed template, which have a high nitrogen content of 12.01 at. % and a specific surface area of 492.7 $m^2 g^{-1}$. The unique structure allows for exhibiting high specific capacitance of 250.64 F g^{-1} and excellent rate capability.

Keywords: Carbon materials; Porous materials; Supercapacitor; Energy storage.

1 Introduction

Supercapacitors, also known as ultracapacitors have attracted intensive attention in energy storage application owing to their high power density and superior cycling stability [1, 2]. Among different electrode materials, two-dimensional (2D) nanomaterials, such as graphene and graphene-like carbon nanosheets, have been considered to be a promising candidate as a electrical double layer capacitors (EDLCs) electrode due to their high surface area and shortened diffusion paths of electrolyte ions [3]. A typical 2D structure material, graphene, is widely used as supercapacitor electrodes due to its high surface area and superior conductivity [4]. However, graphene is irreversibly agglomerated by van der Waals forces during the preparation procedure [5]. Moreover, the preparation process of graphene is

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