



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-18

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/5523>

Title:	Palladium Nanoparticles Supported on Nitrogen doped Reduced Graphene Oxide (Pd/NrGO) for Fuel Cell Reactions
Authors:	Anshul
Keywords:	Fuel Cell Reactions Palladium Nanoparticles
Issue Date:	Apr-2023
Publisher:	IISER Mohali
Abstract:	<p>In recent years, Pd-containing catalysts have emerged as alternatives to Pt due to Pd's strong catalytic activity, comparable characteristics, abundance, and affordable cost. Pd- based nanomaterials were applied as the binary compound catalyst for the excellent activity of oxygen reduction reaction (ORR) and alcohol oxidation reactions (EOR and MOR) for direct alcohol fuel cells (DAFC). This catalyst could inhibit particle agglomeration after a long processing time, require low production cost and exhibit good electro In this study, Pd nanocomposite was prepared via the chemical reduction method. Powder X-ray diffraction (XRD) was applied to confirm the deposition of Pd on NrGO sheets. The solid-supported Pd catalysts were prepared on N-doped reduced graphene oxide (NrGO) sheets simply by the chemical reduction method. Sodium borohydride NaBH₄ was used as a reducing agent for the chemical reduction method. The uniform dispersion of Pd nanoparticles on N-doped reduced graphene oxide sheets, which were prepared by the chemical reduction method, was observed by transmission electron microscopy (TEM) techniques. TEM micrograph showed that particle sizes of synthesized catalysts were in the range of 3-4 nm. The electrochemical performance of the catalyst was found to be suitable for both alcohol oxidation reactions (EOR, MOR) as well as for oxygen reduction reactions (ORR), so the designed catalyst can act as a potential bi-functional catalyst for Alcohol oxidation reaction(EOR, MOR) and Oxygen reduction reaction (ORR) in direct alcohol fuel cells (DAFCs).</p>
URI:	http://hdl.handle.net/123456789/5523
Appears in Collections:	MS-18

Files in This Item:

File	Description	Size	Format	
MS18193.pdf		3.08 MB	Adobe PDF	View/Open

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.