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Abstract

High hydrogen adsorption by a metal-graphene-micro porous carbon nano-network

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Abstract:

A simple, cost-effective sputtering technique is adopted to convert ultra-thin amorphous-carbon into metal-incorporated graphitic micro porous-carbon film and differential resistance measurement depicts its high hydrogen uptake capacity. Average number of graphene layer formation dependents on sputtering parameters (current/voltage/time), which manifest bi-to-multi-layer graphene walls. With increase in graphene layers, hydrogen adsorption increases due to a four-fold effect - higher molecular hydrogen uptake at the graphene layers, more active sites into the microspores, promotion of molecular dissociation into atomic hydrogen by the metal nanoparticles, followed by adsorption at the active surface sites and the formation of hydrogenated carbon via destruction of the π-bonds.

Biography:

Arghya Narayan Banerjee completed Ph.D. in Physics with a specialty in Materials Science and Semiconductor Nanostructure Engineering. Demonstrated excellence in managing large, complex, and multiple projects of significant impact, with a proven track record for devising creative solutions to technical problems

Publication of speakers:

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