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## Silicon carbide: A versatile nano-material

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Silicon carbide (SiC) nano-materials are widely investigated due to their unique and fascinating properties such as high strength, good creep, oxidation resistance at elevated temperatures, chemical inertness, thermal stability and resistance to corrosion. Numerous applications of SiC nano-materials such as their use as semi-conducting devices, for reinforcement in ceramic composites, in metal matrix composites and catalytic supports have been investigated worldwide. Sol-gel process combined with the techniques such as polymer blending is used to fabricate the organic-inorganic hybrid materials for the production of composite nano-materials such as SiC. In the sol-gel process and polymer blend technique, sol-gel derived silica was blended with coal tar pitch, polypropylene-polystyrene blend and polycarbonate to yield silicon carbide nano-fibers. Unbleached and bleached soft wood pulps were used as templates and carbon precursors to produce SiC nano-rods. Hydrolyzed tetraethyl ortho-silicate, silicic acid was infiltrated into the pulps followed by carbo-thermal reduction to form SiC nano-rods. We have synthesized SiC from the hybrid of bio-polymer using sol-gel process via carbo-thermal reduction. This talk will focus on the synthesis, properties and applications of silicon carbide nano ceramic materials using different source of polymer/organic waste.

### Biography

Ajay Kumar Mishra has completed his PhD from Delhi University and Post-doctoral studies from University Free State and University of Johannesburg at the Department of Chemistry. He is also working as "Adjunct Professor" at Jiangsu University, China which is a well known University in China. He has published around 100 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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