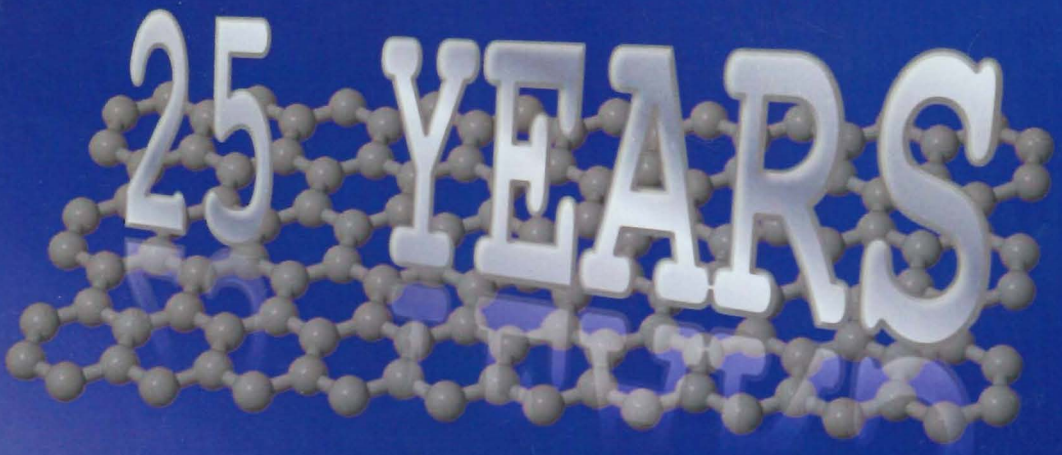
International Winterschool on Electronic Properties of Novel Materials

Molecular Nanostructures



Program

Hotel Sonnalp
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Name A. HUCZKO

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MON 35

Spontaneous formation and characterization of silicon carbide nanowires generated by thermolysis

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Nanowires (NWs) often show distinct properties from their bulk counterparts because of the radial confinement. Since silicon carbide NWs can be used as interconnects in integrated circuits and they are compatible with the processing of CMOS devices, their synthesis has been extensively studied recently. Here, we propose a fast, simple, easy to operate, and one-step chemical synthesis of branched SiC nanostructures via a thermolysis route. The effect of a set of parameters, such as: reactant composition (powdered Si/PTFE or Si/PTFE/NaN3 mixture), initial combustion pressure (1-20 atm) and atmosphere (air, argon, nitrogen) was studied. The morphology of the products has been characterized using XRD, SEM, TEM and Raman spectroscopy. The chemical purification procedure was tested. Finally, the mechanism of formation and possible applications in composite materials are currently under investigation.
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MON 36

Structural analysis of electron beam-induced destruction of graphene membranes in electron microscopes

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Observation of graphene membranes under exposure to electron beam irradiation in a high resolution transmission electron microscope (HRTEM) show that such