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Quick growth of nanostructured SiC films by using short-pulse laser ablation deposition technique HONGXIN ZHANG, Physics Department, University of Puerto Rico, Rio Piedras, BOQIAN YANG, XINPENG WANG, XI-ANPING FENG — Nanoscale silicon carbide (SiC) particles, wire and nanostructured films have been synthesized on different substrates by using short-pulse KrF excimer laser plasma deposition (SP-LPD) technique. Setting laser repetition of 2Hz, 30 minutes of SP-LPD yielded large area of SiC films with thickness up to 30um. Higher repetition of laser plasma deposition produces higher growth rate, resulting in thicker SiC films. Nanoscale particles and wire are observed. The advantage of SP-LPD technique for quick synthesis of SiC is to avoid film thermal ablation or to have low heat generated during deposition. A novel laser line-focusing lens technique combined with special configurations of SiC target are used to synthesize preferred nanostructures of particles, wire, and films. Structures, composites, and properties of the SiC samples are characterized by using scanning electron microscopy (SEM), energy loss spectroscopy (ELS), X-ray photoelectron spectroscopy (XPS), and Raman scattering techniques.

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