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Laser Induced Periodic Surface Structures on Nano Metal Oxide filled Polyvinylidene Fluoride Nanocomposites

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Abstract

The ability of polarized pulsed laser in surface modification of substrate surfaces without thermally destroying them is a well-established concept of scientific procedure. In this work, we report the laser induced surface structures that are created on the semi crystalline polyvinylidene fluoride (PVDF) polymer and its composites containing transition metal oxides-zinc oxide of 100 nm and iron oxide of 30 nm diameter. The PVDF nanocomposites are fabricated by solution casting method and films of 0.2 mm thickness are used for laser treatment. The periodic structures formed are demonstrated by atomic force microscopy and profilometry investigations. Influence of laser pulses on the material properties is also addressed by means of Fourier

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