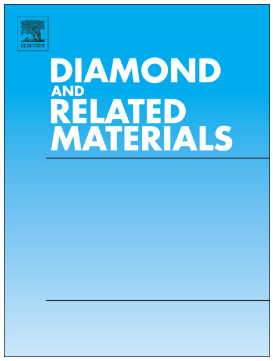

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Partial Formation of Linear Concavo-convex Microstructure onto Microwells by Diamond-like Carbon Thin Film Deposition

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Abstract

By a procedure to partially deposit rigid diamond-like carbon (DLC) thin films using a mask on a soft elastomer, poly(dimethylsiloxane) (PDMS), substrate directionally stretched, areas with the regular linear pattern consisting of a periodical concavo-convex shape with several μm size were successfully formed onto microwells fabricated on the substrate. The DLC thin film depositions were performed by an inductively-coupled plasma (ICP) CVD method, and the optimal deposition conditions, mainly the substrate bias voltage of -650 V, to form the linear pattern of the periodical concavo-convex shape were revealed. When an elongation strain applied on the PDMS substrate increased, the height of the concavo-convex shape increased. In