

Abstract Submitted
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Evolution of Roughness and Wavelength Selection during Fluorocarbon Plasma Etching of Nanoporous Silica¹ TAESOOON KWON, HUNG-CHIH KAN, XUEFENG HUA, GOTTLIEB OEHRLEIN, RAY PHANEUF, University of Maryland — Nanoporous silica is a technologically appealing candidate as a low-k dielectric material for high speed nano device applications. A crucial issue during plasma pattern transferring processes is the stability of the plasma/NPS interface. Induced surface/interface roughness may ultimately limit the minimum feature sizes attainable in devices using this material. Our results show a monotonic increase with porosity in the roughening rate, and pronounced disagreement with the predictions of simple models based upon self-affine behavior. In addition we find direct evidence for spontaneous pattern formation during etching.

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