Comprehensive 3-D notching simulator with non planar substrates

Eytan Barouch, Brian Bradie
Dept. of Math. & Comput. Sci., Clarkson Univ.,
Potsdam, NY, USA

Uwe Hollerbach, George Kaniadakis, Steven A. Orszag
Applied and Computation Mathematics
Princeton Univ., NJ, USA

ABSTRACT

A comprehensive three-dimensional simulation model for non-planar substrate lithography is presented. Matching substrate as well as standing wave effects are examined. The projection printing is simulated using Hopkins' results and the exposure model is solved using spectral element discretizations of the nonlinear wave equation coupled with the rate equation for the photoactive compound concentrate evolution. The dissolution algorithm describing moving fronts has been modified to handle various topographies, thus yielding the final profiles. Results are presented for several test problems.