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Optical microlithography: some analytical results

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ABSTRACT

Progress in analytic description of diazonaphthoquinone type positive photoresist imaging is reviewed. Both exposure and dissolution processes are discussed. Calculation of the photoactive compound (PAC) concentration is discussed for both nonreflecting and reflecting substrates. Effects of contrast enhancing layers on the image quality are also reviewed. Mathematical description of the relation between the latent image, as described by the concentration distribution of the PAC, and the resist dissolution process is explored, using a variational principle to calculate solvent trajectories in the resist.