



1. Title:	Exposure dose dependence on LER of latent image in EB/EUV lithographies studied by Monte Carlo technique
2. Full names of all authors:	Akinori Saeki, Takahiro Kozawa, Seiichi Tagawa, Heidi B. Cao, Hai Deng, and Michael J. Leeson

3. Abstract body:

Of importance issue in post-optical lithographies such as electron beam (EB) and extreme ultraviolet (EUV) is the line edge roughness (LER) or line width roughness (LWR). It has been elucidated by our group that the use of ionizing radiation such as EB/EUV provokes change of acid formation mechanism in chemically amplified (CA) resists, which gives rise to additional factor to cause resolution blur. We provide here an exposure dose dependence on LER of latent image in EB-CA resist from 1 to 50 C/cm<sup>2</sup>. By using a Monte Carlo simulation and empirical equations, the effects of exposure dose and amine concentration on LER were investigated in terms of shot noise and contrast curve.