1. Title:	Novel CA resist sysytem for EUVL
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3. Abstract body:

The most prior issue in EUVL is to achieve line edge roughness less than 2 nm(3sigma) and sensitivity of less than 2 ~ 5 mJ/cm2 for a 32 nm node lithography. A Novel chemical-amplified-resist system is synthesized to achieve small line edge roughness (LER) and high sensitivity for a resist in EUVL. To achieve low LER, uniform concentration of PAG is required in CA resist system. Novel CA resist which consists of the base polymer with a PAG group is synthesized. Onium salts group employed as a PAG group is added at side chain of base polymer. Eo sensitivity under EUV exposure is found to be 0.9 mJ/cm2 for novel resist system. This sensitivity is 5.3 times higher than conventional CA resist system. Under EB exposure, a LER of 2.0 nm (3sigma) in 120-nm line-and-space pattern and sensitivity of 6.4 uC/cm2 are achieved by novel resist system. This LER and sensitivity are 1.8 times smaller and 2.5 times higher than that of conventional CA resist system, respectively. As a result, a LER of PAG bounded polymer is smaller than that of PAG blended polymer. Furthermore, PAG bounded polymer is more sensitive rather than PAG blended polymer. We will discuss the exposure characteristic advantages of PAG bounded polymer for CA resist in EUVL.