1. Title:	Distribution control of protecting groups and its effect on LER for EUV molecular resist
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3. Abstract body:

The minimum feature size for the LSI circuit geometry will reach below 20 nm in the upcoming 32 nm half pitch. In order to achieve this target, various new lithographic technologies, such as ArF immersion lithography with double patterning, Electron-Beam (EB) and Extreme UltraViolet (EUV) lithography, are now simultaneously being developed. However, line edge roughness (LER) of the fabricated resist patterns is becoming the most significant issue as the gate length is reduced. The aim of this study is to develop a new resist, which can pattern with a molecular level accuracy.

We have designed and synthesized a molecular resist material, which has no distribution of the protecting groups and have evaluated its performance as a molecular resist with an EUV exposure tool. The molecular resist attained a resolution of sub-30 nm patterning. It was found that controlling the distribution of the protecting groups in a molecular resist material has a great impact on improving LER.

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