

[IV-6]

Vacuum SR Lithography with Using Plasma Polymerized Organo-silicon Resist

Shinzo Morita, Georgy Vinogradov, Kenji Senda,
and Chunlin Shao

*Center of Co-operative Research on Advanced Science and Technology
Nagoya University, Furo-cho, Nagoya, 464-01, JAPAN*

ABSTRACT

Totally dry lithography is studying with using plasma polymerized resist for almost 15 years. Recently organo-silicon monomer was proposed as a new resist. When the plasma polymerized resist was irradiated through a mask in oxygen gas, the resist was oxidized and a fine pattern of submicron was successfully developed by Cl_2 gas plasma.

We evaluated the resist as a X-ray resist. As a X-ray source, we used Synchrotron Orbital Radiation (SOR or SR). Plasma Polymerization was performed by a new type reactor with a parallel plate electrode system, which are discharged by a pulsed RF generator. The resist was patterned by SR in oxygen gas. The sensitivity was evaluated to be high compared with the former plasma polymerized resist.