CLAIMS

1. An extreme ultraviolet lithography system comprising:
an extreme ultraviolet light source;
a mirror for directing light from the extreme ultraviolet light source;
a reticle stage for imaging the light from the extreme ultraviolet light source on to an extreme ultraviolet mask; and
a wafer stage for placing a semiconductor wafer coated with a vapor deposited photoresist for receiving the light from the reticle stage, the vapor deposited photoresist having a top and a bottom and a different photoresist composition between the top and the bottom of the vapor deposited photoresist, the bottom being more absorbing of EUV photons from EUV radiation in a wavelength range of from 7 nanometers to 40 nanometers than the top.

2. The system as claimed in claim 1 wherein the vapor deposited photoresist is a volatile metal oxide.

3. The system as claimed in claim 1 wherein the vapor deposited photoresist includes a number of ligands and a number of metal atoms, and there is a controlled ratio of the number of ligands to the number of metal atoms to control a photoresist property.

4. The system as claimed in claim 1 wherein the vapor deposited photoresist contains a ligand.

5. The system as claimed in claim 1 wherein the vapor deposited photoresist is a ligand around a metal center.

6. The system as claimed in claim 1 wherein the vapor deposited photoresist is a ligand bonded with a metal oxide.

7. A semiconductor wafer system comprising:
a semiconductor wafer; and
a vapor deposited photoresist over the semiconductor wafer, the vapor deposited photoresist having a top and a bottom and a different photoresist composition between the top and the bottom of the vapor deposited photoresist, the bottom being more absorbing of EUV photons from EUV radiation in a wavelength range of from 7 nanometers to 40 nanometers than the top.

8. The semiconductor wafer system as claimed in claim 7 wherein the vapor deposited photoresist is a volatile metal oxide.

9. The semiconductor wafer system as claimed in claim 7 wherein the vapor deposited photoresist includes a number of ligands and a number of metal atoms, and there is a

controlled ratio of the number of ligands to the number of metal atoms to control a photoresist property.

10. The semiconductor wafer system as claimed in claim 7 wherein the vapor deposited photoresist includes a ligand.

11. The semiconductor wafer system as claimed in claim 7 wherein the vapor deposited photoresist is a ligand around a metal center.

12. The semiconductor wafer system as claimed in claim 7 wherein the vapor deposited photoresist is a ligand bonded with a metal oxide.