WHAT IS CLAIMED IS:

1. A method of irradiating a resist film of a resist material with a patterned beam of EUV light having a wavelength of less than 11 nm, the resist material comprising a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn.

2. The method of claim 1, wherein the wavelength is in the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 nm or 6.8 nm.

3. The method of claim 1 or 2, wherein the resist material is deposited as a film onto a substrate, and wherein said film has a thickness ranging from 10 nm to 100 nm, and for example less than 50 nm.

4. The method of any one of claims 1 to 3, wherein said compound is an oxide and/or wherein said element is tantalum.

5. A photolithographic patterning process, comprising:

forming a film of a resist material on a substrate;

irradiating the resist film with a patterned radiation beam of EUV light of a wavelength of less than 11nm; and

developing said resist film;

wherein said resist material comprises a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn.

6. The process of claim 5, wherein said wavelength is the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 nm or 6.8 nm.

7. The process of claim 5 or 6, wherein said film has a thickness ranging from 10 nm to 100 nm and for example less than 50 nm.

8. The process of any one of claims 5 to 7, wherein said compound is an oxide and/or wherein said element is tantalum.

9. A method of manufacturing a device, wherein patterned device features are applied to a substrate by a sequence of lithographic and other processing steps, and wherein at least one of said lithographic steps is a photolithographic patterning process as claimed in any of claims 5 to 8.

10. Use of a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn in a resist material for an EUV lithographic process, wherein the wavelength of the EUV radiation used in said process is less than 11nm.

11. The use of claim 10, wherein said wavelength is in the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 or 6.8 nm.

12. The use of claim 11 or 12, wherein the resist material is deposited as a film onto a substrate and wherein said film has a thickness ranging from 10 to 100 nm, and for example less than 50 nm.

13. The use of any one of claims 10 to 12, wherein said compound is an oxide and/or wherein said element is tantalum.

14. A resist material suitable for being patterned with a beam of EUV light having a wavelength of less than 11 nm, the resist material having a mean free path of about 2 nm.

15. The resist material according to claim 14, the resist material comprising a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn.

WHAT IS CLAIMED IS:

1. A method of irradiating a resist film of a resist material with a patterned beam of EUV light having a wavelength of less than 11 nm, the resist material comprising a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn, wherein the wavelength is in the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 nm or 6.8 nm.

2. The method of claim 1, wherein the resist material is deposited as a film onto a substrate, and wherein said film has a thickness ranging from 10 nm to 100 nm, and for example less than 50 nm.

3. The method of any one of claims 1 to 2, wherein said compound is an oxide and/or wherein said element is tantalum.

4. A photolithographic patterning process, comprising:

forming a film of a resist material on a substrate;

irradiating the resist film with a patterned radiation beam of EUV light of a wavelength of less than 11nm; and

developing said resist film;

wherein said resist material comprises a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn, wherein said wavelength is the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 nm or 6.8 nm.

5. The process of claim 4, wherein said film has a thickness ranging from 10 nm to 100 nm and for example less than 50 nm.

6. The process of any one of claims 4 to 5, wherein said compound is an oxide and/or wherein said element is tantalum.

7. A method of manufacturing a device, wherein patterned device features are applied to a substrate by a sequence of lithographic and other processing steps, and wherein at least one of said lithographic steps is a photolithographic patterning process as claimed in any of claims 4 to 6.

8. Use of a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn in a resist material for an EUV lithographic process, wherein the wavelength of the EUV radiation used in said process is less than 11 nm, wherein said wavelength is in the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 or 6.8 nm.

9. The use of claim 8, wherein the resist material is deposited as a film onto a substrate and wherein said film has a thickness ranging from 10 to 100 nm, and for example less than 50 nm.

10. The use of any one of claims 8 to 9, wherein said compound is an oxide and/or wherein said element is tantalum.

11. A resist material comprising a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn and suitable for being patterned with a beam of EUV light having a wavelength of less than 11 nm, wherein the wavelength is in the range of 5-8 nm, for example in the range of 6.5-6.9 nm, for example around 6.7 nm or 6.8 nm.

12. A resist material suitable for being patterned with a beam of EUV light having a wavelength of less than 11 nm, the resist material having a mean free path of about 2 nm.

13. The resist material according to claim 12, the resist material comprising a compound comprising at least one element selected from the group consisting of: Ta, W, Re, Os, Ir, Ni, Cu and Zn.