CLAIMS

1. A method of manufacturing an extreme ultraviolet (EUV) mask blank comprising:

forming a multilayer stack of reflective layers on a substrate, the multilayer stack of reflective layers including a plurality of reflective layer pairs;

forming a capping layer on the multilayer stack of reflective layers; and

forming an absorber layer on the capping layer, the absorber layer comprising an alloy of at least two different absorber materials selected from the group consisting of tantalum borate (TaBO), iridium (Ir), tin dioxide (SnO_2), tin oxide (SnO), caesium iodide (CsI), tin (Sn), cobalt (Co), and antimony (Sb).

2. The method of claim 1, wherein the plurality of reflective layer pairs are made from a material selected from molybdenum (Mo) containing material and silicon (Si) containing material and the absorber layers are made from an alloy of at least two absorber materials selected from the group consisting of tin dioxide (SnO_2), tin oxide (SnO), tin (Sn), and antimony (Sb).

3. The method of claim 2, wherein the absorber layer has a thickness in a range of 5 nm and 60 nm.

4. The method of claim 2, wherein the absorber layer has a thickness in a range of 51 nm and 57 nm.

5. The method of claim 1, wherein the absorber layer comprises an absorber material selected from an alloy of at least two absorber materials selected from the group consisting of tin dioxide (SnO_2), tin oxide (SnO), tin (Sn), and antimony (Sb).

6. The method of claim 1, wherein the absorber materials in the absorber layer are selected to effect etch properties of the absorber layer.

7. The method of claim 1, wherein the absorber layer is formed in a physical deposition chamber having a first cathode comprising a first absorber material and a second cathode comprising a second absorber material.

8. The method of claim 1, wherein the absorber layer is formed in a physical deposition chamber having a first cathode comprising a first absorber material, a second cathode comprising a second absorber material, a third cathode comprising a third absorber material, a fourth cathode comprising a fourth absorber material, and a fifth cathode comprising a fifth absorber material.

9. An extreme ultraviolet (EUV) mask blank comprising:

a substrate;

a multilayer stack of reflective layers on the substrate, the multilayer stack of reflective layers including a plurality of reflective layers including reflective layer pairs;

a capping layer on the multilayer stack of reflecting layers; and

an absorber layer comprising an alloy of at least two different absorber materials selected from the group consisting of tantalum borate (TaBO), iridium (Ir), tin dioxide (SnO_2), tin oxide (SnO), caesium iodide (CsI), tin (Sn), cobalt (Co), and antimony (Sb).

10. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the plurality of reflective layers are selected from molybdenum (Mo) containing material and silicon (Si) containing material and the absorber layer are is made from an alloy of at least two absorber materials selected from the group consisting of iridium (Ir), tin dioxide (SnO_2), cobalt (Co), tin oxide (SnO), caesium iodide (CsI), tin (Sn), antimony (Sb), and tantalum borate (TaBO).

11. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the absorber layer is made from an alloy of at least two absorber materials selected from the group consisting of tin dioxide (SnO_2), tin oxide (SnO), and tin (Sn), and antimony (Sb).

12. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the absorber layer has a thickness in a range of 5 nm and 60 nm.

13. The extreme ultraviolet (EUV) mask blank claim 9, wherein the absorber layer has a thickness in a range of 51 nm and 57 nm.

14. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the materials in the absorber layer are selected to effect etch properties of the absorber layer.

15. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the absorber layer is formed in a physical deposition chamber having a first cathode comprising a first absorber material and a second cathode comprising a second absorber material.

16. The extreme ultraviolet (EUV) mask blank of claim 9, wherein the absorber layer is formed in a physical deposition chamber having a first cathode comprising a first absorber material, a second cathode comprising a second absorber material, a third cathode comprising a third absorber material, a fourth cathode comprising a fourth absorber material, and a fifth cathode comprising a fifth absorber material.