

What is claimed is:

1. A method of manufacturing an extreme ultraviolet (EUV) mask blank comprising:
5 providing a substrate;
 forming a multilayer stack of reflective layers on the 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
10 comprising an alloy of at least two different absorber materials.
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
15 absorber materials selected from the group consisting of platinum (Pt), zinc (Zn), gold (Au), nickel oxide (NiO), silver oxide (Ag₂O), iridium (Ir), iron (Fe), tin dioxide (SnO₂), cobalt (Co), chromium nickel alloys, Ni₈Cr₂, tin oxide (SnO), copper (Cu), silver (Ag), actinium (Ac), tellurium (Te), caesium iodide (CsI), tin (Sn), zinc telluride (ZnTe), antimony (Sb), tantalum (Ta), tantalum nitride (TaN), tantalum nitride oxide (TaNO),
20 chromium (Cr), chromium nitride (CrN), and tantalum borate (TaBO).
3. 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 tantalum (Ta), tantalum nitride (TaN), tantalum nitride oxide
25 (TaNO), tantalum borate (TaBO), platinum (Pt), zinc (Zn), gold (Au), nickel oxide (NiO), silver oxide (Ag₂O), iridium (Ir), iron (Fe), tin dioxide (SnO₂), cobalt (Co), chromium nickel alloys, in particular Ni₈Cr₂, tin oxide (SnO), copper (Cu), silver (Ag), actinium (Ac), tellurium (Te), caesium iodide (CsI), tin (Sn), zinc telluride (ZnTe), chromium (Cr), chromium nitride (CrN), and antimony (Sb).
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4. The method of claim 1, wherein absorber layer comprises an alloy including nickel (Ni) and tantalum nitride (TaN).

5. The method of claim 1, wherein the absorber materials in the absorber layer are selected to effect etch properties of the absorber layer.
6. 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.
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, 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.
8. 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.
9. The extreme ultraviolet (EUV) mask blank of claim 10, 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 platinum (Pt), zinc (Zn), gold (Au), nickel oxide (NiO), silver oxide (Ag₂O), iridium (Ir), iron (Fe), tin dioxide (SnO₂), cobalt (Co), chromium nickel alloys, Ni₈Cr₂, tin oxide (SnO), copper (Cu), silver (Ag), actinium (Ac), tellurium (Te), caesium iodide (CsI), tin (Sn), zinc telluride (ZnTe), antimony (Sb), tantalum (Ta), tantalum nitride (TaN), tantalum nitride oxide (TaNO), chromium (Cr), chromium nitride (CrN), and tantalum borate (TaBO).

10. 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 tantalum (Ta), tantalum nitride (TaN), tantalum nitride oxide (TaNO), tantalum borate (TaBO), platinum (Pt), zinc (Zn), gold (Au), nickel oxide (NiO), silver oxide (Ag₂O), iridium (Ir), iron (Fe), tin dioxide (SnO₂), cobalt (Co), chromium nickel alloys, in particular Ni₈Cr₂, tin oxide (SnO), copper (Cu), silver (Ag), actinium (Ac), tellurium (Te), caesium iodide (CsI), tin (Sn), zinc telluride (ZnTe), chromium (Cr), chromium nitride (CrN), and antimony (Sb).
11. The extreme ultraviolet (EUV) mask blank of claim 9, wherein absorber layer comprises an alloy including nickel (Ni) and tantalum nitride (TaN).
12. 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.
13. 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.
14. 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.
15. An extreme ultraviolet (EUV) mask blank production system comprising:
- a substrate handling vacuum chamber for creating a vacuum;
 - a substrate handling platform, in the vacuum, for transporting a substrate loaded in the substrate handling vacuum chamber; and
 - multiple sub-chambers, accessed by the substrate handling platform, for forming an EUV mask blank including:
 - a multilayer stack of reflective layers on the substrate, the multilayer stack including a plurality of reflective layer including reflective layer pairs;

a capping layer on the multilayer stack of reflective layers; and an absorber layer comprising an alloy of at least two different absorber materials.