

What is claimed is:

1. A processing method comprising:
exposing a substrate surface to a boron precursor to form an amorphous
boron layer, the substrate surface being substantially free of a barrier layer;
exposing the amorphous boron layer to a first metal precursor to convert
the amorphous boron layer to a first metal layer; and
forming a second metal layer on the first metal layer by exposing the first
metal layer to a second metal precursor.
2. The method of claim 1, wherein the boron precursor comprises one or more
species with a general formula of $B_cH_eX_fR_i$, where each X is a halogen
independently selected from F, Cl, Br and I, each R is an independently
selected C1-C4 alkyl group, c is any integer greater than or equal to 2, each of
d, e and f are less than or equal to c+2 and d+e+f is equal to c+2.
3. The method of claim 1, wherein the first metal precursor and the second metal
precursor independently comprise one or more of WF_6 , WCl_6 , WCl_5 , $W(CO)_5$,
 MoF_6 , $MoCl_5$, or $Mo(CO)_6$.
4. The method of claim 1, wherein the first metal precursor comprises
substantially no fluorine.
5. The method of claim 1, wherein the second metal layer is formed by separately
exposing the substrate surface to a second metal precursor and a reactant.
6. A processing method comprising:
exposing a substrate surface to a silicon precursor to form an
amorphous silicon layer, the substrate surface being substantially free of a
barrier layer;

exposing the amorphous silicon layer to a first metal precursor to convert the amorphous silicon layer to a first metal layer; and

forming a second metal layer on the first metal layer by exposing the first metal layer to a second metal precursor.

- 5
7. The method of claim 6, wherein the silicon precursor comprises one or more species with a general formula of $\text{Si}_g\text{H}_h\text{X}_i$, where each X is a halogen independently selected from F, Cl, Br and I, g is any integer greater than or equal to 1, h and i are each less than or equal to $2g+2$ and $h+i$ is equal to $2g+2$.
- 10
8. The method of claim 6, wherein the first metal precursor and the second metal precursor independently comprise one or more of WF_6 , WCl_6 , WCl_5 , $\text{W}(\text{CO})_5$, MoF_6 , MoCl_5 , or $\text{Mo}(\text{CO})_6$.
- 15
9. The method of claim 6, wherein the first metal precursor comprises substantially no fluorine.
10. The method of claim 6, wherein the second metal layer is formed by separately exposing the substrate surface to a second metal precursor and a reactant.
- 20
11. A processing method comprising:
exposing a substrate surface to a silicon precursor and a boron precursor to form an amorphous layer comprising silicon and boron, the substrate surface being substantially free of a barrier layer;
25 exposing the amorphous layer to a first metal precursor to convert the amorphous layer to a first metal layer; and
forming a second metal layer on the first metal layer by exposing the first metal layer to a second metal precursor.
- 30
12. The method of claim 11, wherein the silicon precursor comprises one or more species with a general formula of $\text{Si}_g\text{H}_h\text{X}_i$, where each X is a halogen

- independently selected from F, Cl, Br and I, g is any integer greater than or equal to 1, h and i are each less than or equal to $2g+2$ and $h+i$ is equal to $2g+2$, and the boron precursor comprises one or more species with a general formula of $B_cH_dX_eR_i$, where each X is a halogen independently selected from F, Cl, Br and I, each R is an independently selected C1-C4 alkyl group, c is any integer greater than or equal to 2, each of d, e and f are less than or equal to $c+2$ and $d+e+f$ is equal to $c+2$.
- 5
13. The method of claim 11, wherein the amorphous layer comprises no more than 5 atomic percent silicon.
- 10
14. The method of claim 11, wherein the amorphous layer comprises no more than 5 atomic percent boron.
- 15
15. The method of claim 11, wherein the second metal layer is formed by separately exposing the substrate surface to a second metal precursor and a reactant.