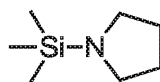


What is claimed is:

1. A selective deposition method comprising:
providing a substrate comprising a first semiconductor surface and a
5 second dielectric surface;
exposing the substrate to a blocking compound to selectively form a
blocking layer on the second surface over the first surface;
exposing the substrate to a titanium precursor to selectively deposit a Ti-
containing layer on the first surface over the second surface; and
10 heating the substrate to form a modified first surface comprising titanium
and silicon.
2. The method of claim 1, wherein the substrate comprises a finFET structure.
- 15 3. The method of claim 2, wherein the finFET structure comprises source and
drain terminals comprising silicon surfaces.
4. The method of claim 1, wherein the blocking compound comprises a blocking
agent of a general formula R_3Si-X , where each R is independently C1-C4 alkyl
20 and X is any leaving group.
5. The method of claim 4, wherein the blocking agent consists essentially of a
compound of Formula I.



(I)

- 25 6. The method of claim 5, wherein the substrate is exposed to the blocking
compound at a temperature in a range of about 250 °C to about 450 °C.
- 30 7. The method of claim 1, wherein the titanium precursor comprises a species
comprising at least one halide ligand.

8. The method of claim 1, wherein the titanium precursor comprises a species comprising at least one amine ligand.
9. The method of claim 8, wherein the amine ligand is of a general formula $-NR_2$ and each R is independently selected from H, C1-C4 alkyl group or a trimethyl silyl group.
5
10. The method of claim 9, wherein the titanium precursor consists essentially of tetrakis(ethylmethyamido)titanium.
- 10 11. The method of claim 1, wherein the titanium precursor comprises a species comprising at least one oxo ligand.
12. The method of claim 1, wherein exposing the substrate to a titanium precursor further comprises separately exposing the substrate to a reactant.
15
13. The method claim 12, further comprising exposing the substrate to a plasma.
14. The method of claim 1, wherein the Ti-containing layer comprises a titanium alloy.
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15. The method of claim 1, wherein the modified first surface consists essentially of $TiSi_2$.