wherein the self-assembling monomolecular film is produced on the solid by adsorption from a solution containing a chlorosilane.

4. The process according to claim 3, wherein the chlorosilane in solution is 7-octenyldimethylchlorosilane.

5. The process according to claim 3, wherein the chlorosilane in solution is 5-hexenyldimethylchlorosilane.

6. The process according to claim 2, wherein the catalytic precursor is a colloid containing palladium and tin.

7. The process according to claim 6, wherein the substrate is treated sequentially with chemical compounds of tin and palladium to produce a catalytic precursor thereon.

8. The process according to claim 1, wherein the reactivity in regions of the film is altered by irradiating those regions with irradiation that promotes photolytic cleavage of the irradiated regions.

9. The process according to claim 8, wherein the wafer is situated in a vacuum or an inert atmosphere during the irradiation procedure.

10. The process according to claim 9, wherein the irradiation is UV light whose wavelength is less than 200 nm.

11. The process according to claim 10, wherein the self-assembling film is a silane layer.

12. The process according to claim 1, wherein the substrate is a solid of semiconductive silicon having hydroxyl groups on its surface and wherein the self-assembling monomolecular film is bound to the substrate by siloxane bridges to those hydroxyl groups.

13. A process for producing metal paths on a substrate comprising,

selecting a monomolecular film forming the surface of said substrate,

altering the reactivity in regions of said film by irradiating to produce a predetermined pattern in the film,

causing a catalytic reaction to occur only at those regions of the film that have sufficient reactivity to a predetermined catalyst and

placing the substrate in an electroless metal plating bath whereby a metal plate is produced in those regions which have been catalyzed.

14. The process according to claim 13 wherein the substrate is dielectric silicon oxide and the film is produced on the substrate by absorption from a solution containing a chlorosilane.

15. A process according to claim 1 wherein the substrate is alumina and the film is produced from a chlorosilane.

16. A process according to claim 1 wherein the substrate is a conducting metal and the film is produced by absorption from a chlorosilane.

17. A process in accordance with the process of claim 15 wherein the chlorosilane is UTF1.

18. A process in accordance of the process of claim 1 wherein said substrate is selected from the class consisting of semiconductive silicon, dielectric silicon oxide, alumina, metal and quartz and said film is absorbed from a solution containing a silane.

19. A process in accordance with claim 18 wherein the silane is 4-aminobutyldimethylmethoxysilane.

20. A process in accordance with the process of claim 1 wherein the substrate is selected from the group consisting of semiconductive silicon, dielectric silicon, alumina, metal and quartz,

said monomolecular film is absorbed from a solution consisting of a silane or a titanate, said catalytic precursor is a colloid containing palladium and tin, and said metal plate is selected from the group consisting of metals that can be deposited by electroless plating copper, gold, cobalt, nickel, permalloy (iron-nickel-boron alloy) and palladium,

and further comprising placing the substrate in a reactive ion etch to transfer patterns to the substrate followed by stripping the metal with an oxidizing acid.

21. A product produced by the process of claim 1.

22. An electrical device having high resolution metal plate lines produced by the process of claim 13.

23. A process of producing patterned molecular assemblies on a substrate comprising,

providing a substrate having at least one layer of radiation reactive material having substantially equal reactivity over a surface,

exposing said one layer of radiation reactive material to patterned radiation to create spatially separated first and second areas of different reactivity,

building at least one additional layer of material directly on one of said first and second areas to create a patterned on the substrate.

24. A process in accordance with the process of claim 23 wherein said additional layer is selected from inorganic materials, organic materials, semiconductive materials, metals or combinations thereof.

25. A process in accordance with the process of claim 23 wherein said at least one additional layer is a metal.

26. A process in accordance with claim 23 wherein said at least one additional layer comprises two different metal layers.

27. A process in accordance with claim 23 wherein the substrate is a semiconductor substance and wherein the layer of radiation reactive material is a silane of the R_nSiX_m type where:

R is an organic functional group;

n=1,2 or 3;

m=4-n; and

X is selected from the class consisting of a halogen, alkoxy or amine.

28. A process in accordance with claim 27 wherein said at least one additional layer comprises a conductive metal.

29. A process in accordance with claim 28 wherein said silane is a chlorosilane.

30. A process in accordance with claim 23 wherein said building step comprises an electroless plating step.

31. A process in accordance with claim 30 wherein said first mentioned at least one layer is a radiation reactive material and said substrate comprises a second material underlying said reactive material layer.

32. A process in accordance with claim 31 wherein said at least one additional layer comprises a conductive metal.

33. A product produced by the process of claim 23.

34. An electrical device having high resolution metal plate lines produced by the process of claim 32.

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