9. A process according to claim 8, wherein said exposing step comprises:

placing a mask over said surface of said self assembled monolayer, said mask having radiation transmitting portions and radiation blocking portions distributed according to said desired pattern, and

projecting said radiation through said radiation transmitting portions onto the surface of the self-assembled monolayer.

10. A process according to claim 8 wherein said exposing step comprises projecting said desired pattern of radiation onto the surface of the self-assembled monolayer through optical focussing element.

11. A process according to claim 8, wherein said exposing step is carried out in air.

12. A process for selectively applying biological molecules to a surface, comprising the steps of:

forming on said surface a self assembled monolayer of a first thiolate compound;

exposing said self-assembled monolayer in the presence of oxygen to high frequency radiation which promotes oxidation of thiolate groups to sulfonate groups; said radiation being distributed according to a desired pattern of said biological molecules;

immersing the exposed self-assembled monolayer in a solution of a compound which forms a second thiolate compound;

wherein said biological molecule preferentially adsorbs on onto one of the said first and second thiolate compounds; and

immersing the exposed self-assembled monolayer in a solution of said biological molecule.

13. A process according to claim 12, wherein one of the thiolate compounds has a strong affinity for adsorbing said biological molecule and the other thiolate compound has essentially no affinity for adsorbing said biological molecule.

14. A process according to claim 12, wherein said first thiolate compound is a perfluorinated alkylthiolate; said second thiolate compound is carboxylic acid-terminated alkylthiolate, and said biological molecule is a protein.

15. A process according to claim 12, wherein said first and second thiolate compounds each comprise a different oligonucleotide group, and said biological molecule is a DNA strand comprising a nucleotide sequence complementary to one of said different oligonucleotide groups.

* * * * *