**Claims:**

1. A method, comprising:

a. providing: i) a crosslinkable polymer comprising first and second monomers, wherein said crosslinkable polymer comprises an azido group on said first or second monomer, ii) a block copolymer comprising third and fourth monomers, wherein said third and fourth monomers are chemically different from said first and second monomers, such that there is no identical monomer in the block copolymer when compared to the monomers of the crosslinkable polymer;

b. coating a surface with said crosslinkable polymer to create a first film;

c. treating said first film under conditions such that crosslinkable polymer is crosslinked;

d. coating said first film with said block copolymer to create a second film; and

e. treating said second film under conditions such that nanostructures form, wherein the shape of the nanostructures is controlled by the chemical nature of said first film.

2. The method of claim 1, wherein the nanostructures comprise cylindrical structures, said cylindrical structures being substantially vertically aligned with respect to the plane of the first film.

3. The method of Claim 1, wherein said coating of step b) comprises spin coating.

4. The method of Claim 3, wherein the thickness of said first film is between 10 and 30 nm.

5. The method of Claim 4, wherein said thickness of said first film is between 15 and 20 nm.

~~6. The method of Claim 1, wherein said crosslinkable polymer comprises an azido group on said first or second monomer.~~

7.6. The method of Claim 6 1, wherein said treating of said first film in step c) comprises heating.

8.7. The method of Claim 1, wherein said third monomer is styrene and said block copolymer comprises polystyrene.

9.8. The method of Claim 8 7, wherein said block copolymer is a polystyrene-block-poly(methyl methacrylate) copolymer.

10.9. The method of Claim 1, wherein said coating of said first film in step d) comprises spin coating.

11.10. The method of Claim 10 9, wherein the thickness of said second film is between 10 and 100 nm.

12.11. The method of Claim 11 10, wherein said thickness of said second film is between 20 and 70 nm.

13.12. The method of Claim 1, wherein the treating of step e) comprises heating.

14.13. A composition, comprising a second polymer film coated on a first polymer film, said first polymer film comprising first and second monomers, wherein said first polymer film comprises an azido group on said first or second monomer, said second polymer film comprising third and fourth monomers, wherein said third and fourth monomers are chemically different from said first and second monomers and not identical to monomers as first polymer film.

15.14. The composition of Claim 14 13, wherein said second film comprises nanostructures, said structures controlled by the chemical nature of said first film.

16.15. The composition of Claim 15 14, wherein said nanostructures comprise cylindrical nanostructures, said cylindrical nanostructures being substantially vertically aligned with respect to the plane of the first film.

~~17.~~16. The composition of Claim ~~14~~ 13, wherein said second film comprises a polystyrene-block-poly(methyl methacrylate) copolymer.

~~18.~~17. The composition of Claim ~~14~~ 13, wherein said first polymer film is coated on a surface.

~~19.~~18. The composition of Claim ~~14~~ 13, wherein said first polymer film is crosslinked.

~~20.~~19. The composition of Claim ~~14~~ 13, wherein the thickness of said first film is between 10 and 30 nm.

~~21.~~20. The composition of Claim ~~20~~ 19, wherein said thickness of said first film is between 15 and 20 nm.

~~22.~~21. The composition of Claim ~~14~~ 13, wherein the thickness of said second film is between 10 and 100 nm.

~~23.~~22. The composition of Claim ~~22~~ 21, wherein said thickness of said second film is between 20 and 70 nm.