

etching contrast, and also the production of porous membranes or else as catalyst support.

Summary:

- 5 There is provided a nanostructured assembly process using a composition comprising a block copolymer, at least one of the blocks of which is crystallizable or has at least one liquid crystal phase, and comprising the following steps:
- 10 - dissolving the block copolymer in a solvent,
- depositing this solution on a surface,
- annealing.

- In an aspect, there is provided a nanostructured assembly
15 process using a composition comprising a block copolymer, at least one of the blocks of which is crystallizable or has at least one liquid crystal phase, wherein the at least one of the blocks is selected such that the Flory-Huggins parameter χ of the block copolymer is between 0.04 and 25,
20 and comprising the following steps:

- dissolving the block copolymer in a solvent,
- depositing this solution on a surface selected from the group consisting of silicon, silicon having a native or
25 thermal oxide layer, hydrogenated or halogenated silicon, germanium, hydrogenated or halogenated germanium, platinum and platinum oxide, tungsten and oxides, gold, titanium nitrides and graphenes, and
- annealing
- 30 wherein orientation of the block copolymer is carried out during a time of between 1 and 20 minutes, limits included, and the block copolymer comprises domains having a size below 10 nm.

Claims

1 A nanostructured assembly process using a composition
comprising a block copolymer, at least one of the blocks of
5 which is crystallizable or has at least one liquid crystal
phase, wherein the at least one of the blocks is selected
such that the Flory-Huggins parameter χ of the block
copolymer is between 0.04 and 25, and comprising the
following steps:

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- dissolving the block copolymer in a solvent,
- depositing this solution on a surface selected from the
group consisting of silicon, silicon having a native or
thermal oxide layer, hydrogenated or halogenated silicon,
15 germanium, hydrogenated or halogenated germanium, platinum
and platinum oxide, tungsten and oxides, gold, titanium
nitrides and graphenes, and

- annealing,

wherein orientation of the block copolymer is carried out
20 during a time of between 1 and 20 minutes, limits included,
and the block copolymer comprises domains having a size
below 10 nm.

2 The process as claimed in claim 1, wherein the block
25 copolymer is a diblock copolymer.

3 The process as claimed in claim 1, wherein the block
copolymer has a crystallizable block.

30 4 The process as claimed in claim 1, wherein the block
which has a liquid crystal phase is lyotropic.

5 The process as claimed in claim 1, wherein the block
which has a liquid crystal phase is thermotropic.

6 The process as claimed in claim 1, wherein the orientation of the block copolymer is carried out at a temperature of between 333 K and 603 K.

7 The process as claimed in claim 1, wherein the orientation of the block copolymer is carried out under a controlled atmosphere comprising solvent vapors, or a solvent atmosphere/temperature combination.

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8 The use of the process as claimed in one of claims 1 to 7, in the field of lithography, or more generally in the field of surface nanostructuring for electronics.

10 9 A mask of block copolymers obtained as claimed in the process of one of claims 1 to 7.