CLAIMS

1. Method for preparing a thin monodomain layer (10) of ferroelectric material comprising the following steps:
   - implanting light species in a first face (4) of a ferroelectric donor substrate (1) to form an embrittlement plane (2) and define a first layer (3) between the embrittlement plane (2) and the first face (4) of the donor substrate (1);
   - assembling the first face (4) of the donor substrate (1) to a support substrate (7) by means of a dielectric assembly layer (7b);
   - fracturing the donor substrate (1) at the embrittlement plane (2) in order to transfer the first layer (3) onto the support substrate (7) and expose a free face (8) of the first layer (3);
   - finishing the first layer (3), this finishing comprising heat treatment of the free face (8) of the first layer (3), followed by thinning of the first layer (3) to form the thin monodomain layer (10);
   the dielectric assembly layer (7b) comprising an oxide preventing the diffusion of hydrogen towards the first layer, or the dielectric assembly layer (7b) comprising a barrier preventing the diffusion of hydrogen towards the first layer (3).

2. Method according to the preceding claim, wherein the thinning comprises chemical-mechanical polishing applied to the free face (8) of the first layer (3).

3. Method according to one of the preceding claims, wherein the heat treatment is carried out at a temperature between 300°C and the Curie temperature of the ferroelectric material making up the first layer (3), and for a period of between 30 minutes and 10 hours.

4. Method according to one of the preceding claims, wherein the heat treatment is carried out under an oxidizing or neutral gaseous atmosphere.

5. Method according to one of the preceding claims, wherein the donor substrate (1) comprises a ferroelectric material chosen from $LiTaO_3$ or $LiNbO_3$.

6. Method according to one of the preceding claims, wherein the ferroelectric material has a crystal direction of between 30° and 60° RY.

7. Method according to one of the preceding claims, wherein the material of the support substrate (7) is silicon.

8. Method according to one of the preceding claims, wherein the donor substrate (1) is a block of solid material.

9. Method according to one of the preceding claims, wherein the donor substrate (1) comprises a thick layer (1a) of ferroelectric material placed on a manipulator substrate (1b).

10. Method according to the preceding claim, wherein the manipulator substrate (1b) has a thermal expansion coefficient identical or close to the thermal expansion coefficient of the support (7).

11. Method according to one of the preceding claims, wherein the material of the first layer (3) and the material of the support substrate (7) have different thermal expansion coefficients.

12. Method according to one of the preceding claims, wherein the dielectric assembly layer (7b) comprises an oxide having nitrogen in a nitrogen/oxygen ratio greater than or equal to 0.01 or 0.05.

13. Method according to one of the preceding claims, wherein the dielectric assembly layer (7b) comprises a silicon oxide having nitrogen in a nitrogen/oxygen ratio of between 0.01 and 0.25 or between 0.05 and 0.01.

14. Method according to one of the preceding claims, wherein the dielectric assembly layer (7b) is formed by a stack comprising a first oxide layer disposed on the side of the support substrate (7a) and a layer of silicon nitride disposed on the side of the first layer (3).

15. Device comprising:
- a thin fully monodomain layer of a ferroelectric material layer (10);
- a dielectric assembly layer (7b) in contact with the thin layer (10) and comprising an oxide preventing the diffusion of hydrogen towards the thin layer (10), or comprising a barrier preventing the diffusion of hydrogen towards the first layer (3);

- a support (7) in contact with the dielectric layer.

16. Device according to the preceding claim, wherein the support substrate (7) is provided with a charge trapping layer (7c) positioned between a solid part (7a) of the support and the dielectric assembly layer (7b).

17. The device according to one of claims 15 to 16, wherein the dielectric assembly layer (7b) comprises an oxide having nitrogen in a nitrogen/oxygen ratio greater than or equal to 0.01 or 0.05.

18. The device according to one of claims 15 to 17, wherein the dielectric assembly layer (7b) comprises a silicon oxide having nitrogen in a nitrogen/oxygen ratio of between 0.01 and 0.25 or between 0.05 and 0.1.

19. The device according to one of claims 15 to 18, wherein the dielectric assembly layer (7b) is formed by a stack comprising a first oxide layer placed on the side of the support substrate (7a) and a layer of silicon nitride placed on the side of the first layer (3).