CLAIMS

1. A method for the manufacture of a structure comprising a plurality of cavities confined between a thin layer and a support substrate, the method comprising the following steps:

a) provision of a donor substrate and of a support substrate, each of the substrates having a front face and a back face;

b) implantation of first light species into the donor substrate in order to form a uniform buried weakened plane delineating, with the front face of the donor substrate, the thin layer that is to be transferred;

c) localized implantation of second species into the donor substrate so as to introduce said second species into the uniform buried weakened plane only in second zones, so as to form a functional buried weakened plane exhibiting:

- first zones containing the first light species and not the second species, and
- second zones containing the first light species and the second species;

d) formation of a plurality of cavities opening onto a front face of the donor substrate or of the support substrate;

e) assembly, by direct bonding, of the donor substrate onto the support substrate along their respective front faces so as to form a bonded structure in which the cavities are plumb with either the first zones or the second zones of the functional buried weakened plane;

f) application of a heat treatment to the bonded structure so as to bring about spontaneous separation along the functional buried weakened plane and form, on the one hand, the structure and, on the other hand, the rest of the donor substrate.

2. The method according to Claim 1, wherein the implantation of step c) is performed in the presence of a mask placed on the front face of the donor substrate plumb with the first zones of the functional buried weakened plane.

3. The method according to Claim 2, wherein the formation of the cavities in step d) is performed by local etching of the front face of the support substrate for example by means of a mask placed on said front face.

4. The method according to Claim 2, wherein, after step c), step d) of forming the cavities involves etching the front face of the donor substrate, plumb with the second zones, the first zones being protected from etching by the mask.

5. The method according to Claim 4, comprising, after step d), and after removing the mask, a step c') of localized implantation of third species on the front face of the donor substrate, the third species thus being implanted in the first zones of the functional buried weakened plane and in another buried plane situated some distance from and below the second zones of the functional buried weakened plane.

6. The method according to Claim 1, wherein step d) of forming the cavities is performed before step c), and comprises:

- the application of a mask placed on the front face of the donor substrate plumb with the second zones of the functional buried weakened plane which is intended to be formed in the later step c), and
- the etching of the front face of the donor substrate plumb with the first zones, the second zones being protected from etching by the mask.

7. The method according to Claim 6, wherein, after step d), and after removing the mask from the front face of the donor substrate, implantation step c) is performed, the second species thus being implanted in the second zones of the functional buried weakened plane and in another buried plane situated some distance from and below the first zones of the functional buried weakened plane.

8. The method according to one of Claims 1 to 5, wherein:

- the second zones of the functional buried weakened plane are plumb with the cavities in the bonded structure, and
- the first light species are hydrogen atoms or ions, and the second species are helium atoms or ions.

9. The method according to one of Claims 1, 2, 3, 6 and 7, wherein:

- the first zones of the functional buried weakened plane are plumb with the cavities in the bonded structure,

- the first light species are hydrogen atoms or ions, or helium atoms or ions or else hydrogen and helium atoms or ions, and
- the second species are silicon atoms or ions capable of slowing the rate of growth of micro-fissures in the second zones of the functional buried weakened plane compared with the rate of growth of the micro-fissures in the first zones.

10. The method according to one of Claims 1 to 9, wherein assembly step e) involves at least one intermediate layer placed on the donor substrate and/or on the support substrate, said intermediate layer having been deposited after one of steps a) to d).