



(51) International Patent Classification:

H01L 21/18 (2006.01) *H01L 25/065* (2006.01)
H01L 27/146 (2006.01) *H01L 21/98* (2006.01)

(21) International Application Number:

PCT/EP2009/055251

(22) International Filing Date:

30 April 2009 (30.04.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0852990 6 May 2008 (06.05.2008) FR

(71) Applicant (for all designated States except US): **S.O.I. TEC SILICON ON INSULATOR TECHNOLOGIES** [FR/FR]; Parc Technologique des Fontaines, Chemin des Franques, F-38190 Bernin (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BROEKAART, Marcel** [FR/FR]; Clos des Gentons, F-38570 Theys (FR). **ASPAR, Bernard** [FR/FR]; Lot. l'abri Dauphinois, Chemin Ribotière, F-38330 Saint Ismier (FR). **LAGAHE, Chrystelle** [FR/FR]; 36, rue du Vercors, F-38920 Crolles

(FR). **BARGE, Thierry** [FR/FR]; 38, rue Félix Esclan-
gon, F-38000 Grenoble (FR).

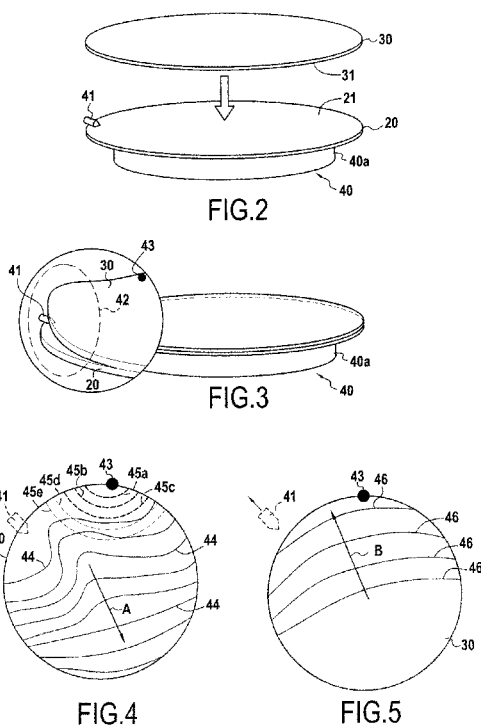
(74) Agents: **DESORMIERE, Pierre-Louis** et al.; Cabinet
Beau De Lomenie, 158 Rue de l'Université, F-75340 Paris
Cedex 07 (FR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ,
EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG,
SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,
TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR),

[Continued on next page]

(54) Title: A METHOD OF ASSEMBLING WAFERS BY MOLECULAR BONDING



(57) Abstract: The invention concerns a method of bonding two wafers (20, 30) by molecular bonding in which a first propagation of a bonding wave initiated from a point of pressure (43) applied to at least one (30) of the two wafers is followed by a second propagation of the bonding wave over a zone covering the point of pressure (43). The second bonding wave propagation may be obtained by interposing a separating element (41) between the two wafers and by withdrawing the element at least after the start of the first bonding wave propagation or by partially unbonding the surfaces of the assembled wafers over a zone located in the vicinity of the point of pressure (63).



OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*

Published:

— *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:

8 July 2010