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ERRATUM

M. Zieliński, W. Jaskólski, J. Aizpurua, G.W. Bryant, Strain and Spin–Orbit Effects in Self-Assembled Quantum Dots, *Acta Phys. Pol. A* **108**, 929 (2005).

In our paper published in Proceedings of the XXXIV International School on Physics of Semiconducting Compounds, Jaszowiec 2005, we have discovered a numerical error in the computation of one of the strain modified tight binding parameters, due to a sign mistake in the numerical algorithm. Therefore, we have recalculated the data shown in Table, and Figs. 2, 4, 6 of that paper. Corrected figures are presented here. Results and conclusions for NSTR--NSO and NSTR-SO approximation remain unchanged. For the approximations that count for the strain effects, the error has mainly influenced the energies and densities of hole states, while the properties of electron states remain almost unchanged.

When the effects of strain are taken into account, the energy of the lowest WL electron level increases by 114 meV, while the top of the WL hole continuum increases by 137 meV; the gap decreases by $\approx$ 23 meV (Fig. 2). The higher

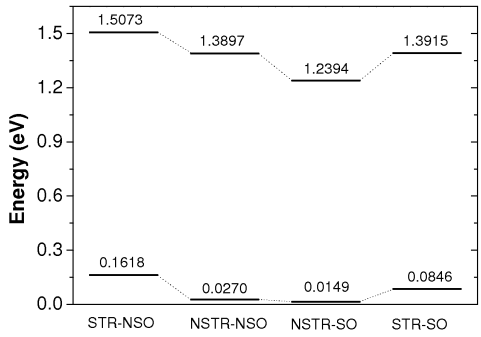

Fig. 2. InAs wetting layer conduction band and valence band edges (eV) calculated in different approximations.

increase in the hole states energies, in the case of the STR-NSO approximation, can be explained by stronger localization of the hole states in the area of the InAs well, which makes them more prone for biaxial compressive strain in the InAs wetting layer.

When the spin–orbit interaction is neglected (STR-NSO) the energies of the bound hole states lie very close to the strain modified GaAs band edges and their densities tend to leak out from the quantum dot region (Fig. 4).

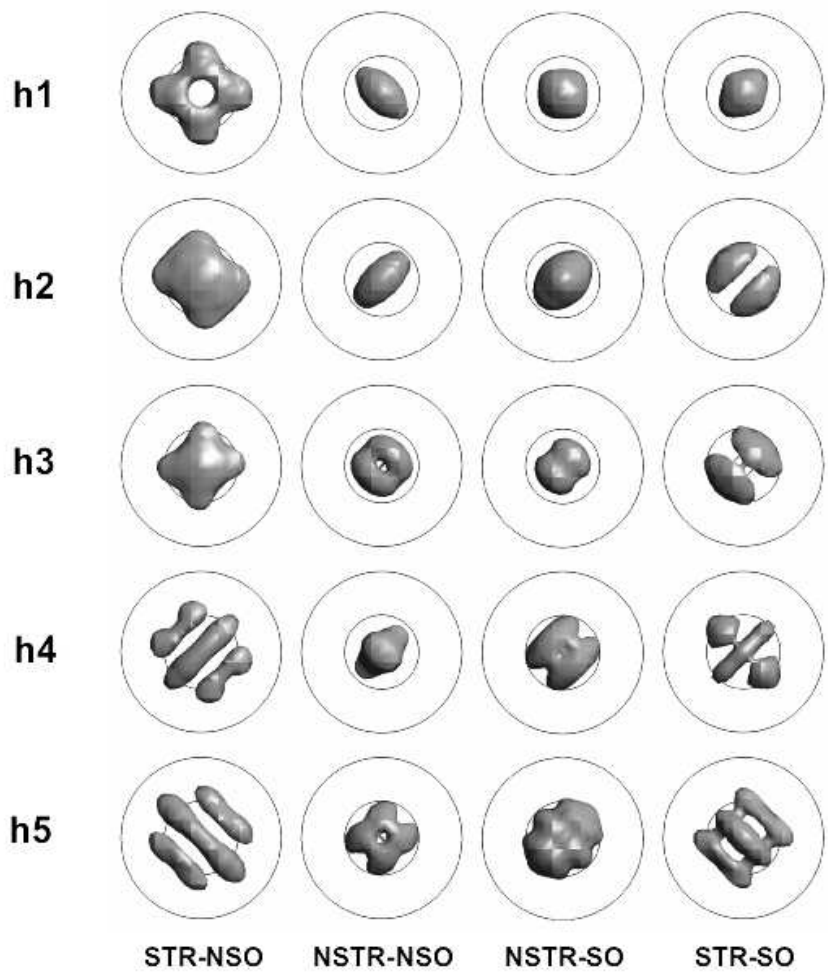

Fig. 4. Density isosurfaces (50%) of five bound hole states of InAs QD calculated in different approximations.

The strain and spin–orbit effects lead together to a strong blue-shift (≈ 130 meV) of the entire spectrum (Fig. 6).

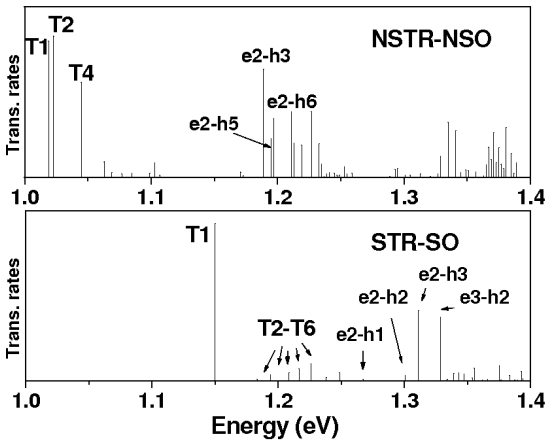

Fig. 6. Electron–hole transition rates (arbitrary units) of the InAs QD calculated in NSTR-NSO and STR-SO approximations. T1, T2, T3, and T4 mark transitions from e_1 electron state to h_1, h_2, h_3, and h_4 hole states, respectively.

TABLE

Energies (eV) of the bound electron and hole states of InAs/GaAs lens-type QD (measured from the bulk GaAs VB-edge), calculated in different approximations (see the text). The effective gap E_g and the number of e/h bound states are also shown.

	NSTR-NSO	NSTR-SO	STR-NSO	STR-NSO-P	STR-SO	STR-SO-P
e_3	1.2728	1.2135	1.5110	1.5114	1.4453	1.4457
e_2	1.2715	1.2111	1.4967	1.4942	1.4178	1.4152
e_1	1.1218	1.0309	1.4036	1.4021	1.3004	1.2987
h_1	0.1021	0.0774	0.2299	0.2291	0.1499	0.1478
h_2	0.0992	0.0655	0.2250	0.2244	0.1172	0.1167
h_3	0.0830	0.0554	0.2233	0.2220	0.1060	0.1041
E_g	1.0198	0.9535	1.1737	1.1730	1.1505	1.1509
bound e	6	3	3	3	2	2
bound h	17	10	7	7	10	10

All the other results and the main conclusions of the paper remain unchanged.

The authors regret these errors.