ERRATA

Erratum to: “Magnetic-Field-Induced Nonparabolicity of Exciton Dispersion in Semiconductors with a Nondegenerate Valence Band” [JETP 113 (3), 502 (2011)]

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1. In the above-mentioned publication, the values of matrix elements $I_{L=0}$ and $I_{L=1}$ appearing in formula (5) are incorrect. The correct values are $I_{L=0} = 1$ and $I_{L=1} = 6$, which reduces the diamagnetic shift of $2P$ states by 10% and of $1S$ states by 30% as compared to the values given in the article. However, this decrease changes the quantitative estimate of the effect only slightly and does not lead to qualitative changes.

2. The numerical estimate of matrix elements $I_{\pm 1}^{\alpha}$ appearing in expression (6b) is underrated by approximately 1.5 times. The correct value is $I_{\pm 1}^{\alpha} = 0.53$.

3. Expression (6b) for perturbation V_2 is written incorrectly. The correct expression is

$$V_2 = \frac{2\hbar e a_B}{c} \left(\frac{1}{M} - \frac{9\gamma_2 \tilde{m}}{4m_0 M} \right) K (B_x I_N^{(y)} + B_y I_N^{(x)}),$$

Fig. 1. (a) Differences in the dispersion dependences of ΔE calculated for zero magnetic field and for magnetic field $B = 12$ T (cf. Fig. 2 in the article). (b) Dispersion dependences of ΔE calculated for magnetic fields $B = 3, 6, 9$, and 12 T (cf. Fig. 3 in the article).

where $\tilde{m} = m_0/(\gamma_1 + 5\gamma_2/2)$, $\tilde{M} = m_e + \tilde{m}$.

4. In expression (1), one more perturbation of the form

$$\hat{V}_3 = \left(\frac{eB_x}{2c\tilde{M}_h} \right) \left(\frac{m_e}{\tilde{m}_h} - \frac{\tilde{m}_h}{m_e} \right) (\hat{p}_z y - \hat{p}_y z)$$

should be taken into account. Allowance for this perturbation in the basis with a preferred axis z will lead to mixing of $2p_{x,y}$ states ($|2, \pm 1, J\rangle$, $J = \pm 1, \pm 2$) with the $2p_z$ state ($|2, 0, J\rangle$), which was not considered in the article. The inclusion of this perturbation will lead to an insignificant splitting of the dispersion depen-

dences of excited $2p_z$ and $2p_y$ exciton states. This splitting is shown in Fig. 1a.

These corrections reduce the nonparabolicity of exciton dispersion by approximately 5 times. At the same time, the effect of nonparabolicity should be observed as predicted in the cited publication.

5. It should be noted in conclusion that the formulas for Bohr radius a_B and Rydberg energy R_n of an exciton on p. 576 of the cited works contain misprints. The correct expressions for these quantities are $a_B = \varepsilon_0 \hbar^2 / \mu e^2$ and $R_n = -\mu e^4 / 2 \hbar^2 \varepsilon_0 n^2$.