Errata corrige

• pp.6.

"... the film thickness is at least about 2.5 times the channel length ..."

should read

"... the film thickness is at least about 2.5 times smaller than the channel length \dots ";

• pp.71, right after Eq.3.21.

The statement "By inserting in Eq.3.10 the operator defined in Eq.3.21 we obtain a non-linear eigenvalue problem" is not correct.

In fact the operator defined in Eq.3.21

$$\sqrt{1 + 2\alpha\hbar^2 \left(\frac{k_x^2}{m_x} + \frac{k_y^2}{m_y} - \frac{1}{m_z}\frac{\partial^2}{\partial z^2}\right)} \right]$$

is obtained by using a Taylor series expansion for the function

$$\sqrt{1 + 2\alpha\hbar^2 \left(\frac{k_x^2}{m_x} + \frac{k_y^2}{m_y} + \frac{k_z^2}{m_z}\right)}$$

with respect to k_z and then by using the standard prescription $k_z \rightarrow (-i\frac{\partial}{\partial z})$. Of course the resulting operator has terms $\left[\frac{\partial^{(2n)}}{\partial z^{(2n)}}\right]$ with $n=1, 2, 3\cdots$, hence it has high order derivatives, but the eigenvalue equation remains a linear equation.

Eq.3.22 corresponds to such a series expansion truncated at the lowest order and leads to a second order operator with respect to the z derivative; the operator in Eq.3.22 is thus a drastic simplification of the operator in Eq.3.21.

• pp.131, Eq.4.65.

In the definition of the charge density $\rho_{ind}(\mathbf{r}, z)$ a sum over \mathbf{q}_p would be appropriate, hence Eq.4.65 should read:

$$\rho_{ind}(\mathbf{r},z) = e \sum_{w,n,n',\mathbf{q}_p} \xi^{\dagger}_{w,n}(z) \,\xi_{w,n'}(z) \,\Pi_{w,n,n'}(\mathbf{q}_p) \,M_{w,n,n'}(\mathbf{q}_p) \,e^{i\mathbf{q}_p \cdot \mathbf{r}} + (c.c.)$$

In Eq.4.72 the Kronecker symbol $\delta_{\mathbf{q},\mathbf{q}_p}$ reduces the sum over \mathbf{q}_p , so that the final expression for $V_{\rho,2T}(\mathbf{q},z)$ and then for the matrix element in Eq.4.73 remain correct.

• pp.152.

The matrix element in the left-hand-side of Eqs.4.144 and 4.146 should read $M_{w,m,m'}^{(0)}(\mathbf{q}, z_0)$ instead of $M_{w,n,n'}^{(0)}(\mathbf{q}, z_0)$, in fact (n,n') are just the summation indexes in the right-hand-side of the equations;

• pp.160, right after Eq.4.177: this is only a remark that should be added as a footnote, it is not a correction.

Eq.4.177 expresses the Fourier transform with a different choice of the prefactor with respect to Eq.A.17 in Appendix.A; the minus sign in $\exp(-i\mathbf{q}\cdot\mathbf{r})$ is also different with respect to Appendix.A. These different choices are as legitimate as those employed in Appendix and, furthermore, they are consistent with the pairs of autocorrelation function and power spectrum that are reported at pp.160 for either the Gaussian or the exponential autocorrelation function.

• pp.160, Eq.4.178.

There is a typo in the exponent; the correct form is:

$$S_R(q) = \pi \Delta_{SR}^2 \lambda_{SR}^2 \exp\left(-\frac{q^2 \lambda_{SR}^2}{4}\right)$$

• pp.161, right after Eq.4.184.

"where $z_1 \ge z_2$ and ..."

should read

"where $z_2 \geq z_1$ and ...";

• pp.197, Eq.4.296.

In the numerator of Eq.4.296 the term $f_{w,n}(\mathbf{k} + \mathbf{q})$ should read $f_{w,n'}(\mathbf{k} + \mathbf{q})$;

• pp.215, fourth line of the second paragraph.

"The operator $[-i\nabla_{\mathbf{r}}]$ applied to the term $\exp(i\mathbf{r}\cdot\mathbf{k})$..."

should read

"The operator $\hat{E}_{CV}^{(\nu)}(-i\nabla_{\mathbf{r}})$ applied to the term $\exp(i\mathbf{r}\cdot\mathbf{k})$...";

• pp.373, Table 9.1.

According to the units in the table, the values reported for the elastic compliance constants 'S' are incorrect by a factor of 10: all values for compliance constants should be divided by 10;

• pp.408, Table 10.1.

There is a typo in the phonon energies that should read $\hbar\omega_{TO1}$, $\hbar\omega_{TO2}$, instead of $\hbar\omega_{TO1}/e$, $\hbar\omega_{TO2}/e$;

• pp.412, three lines before the sub-section "Use of a scalar potential".

"... the screening effect of the inversion layer (Section 4.2 and Eq.4.91) ..." should read

"... the screening effect of the inversion layer (Section 4.7.1 and Eq.4.300) ...";

pp.442, there is a typo in the conjugation sign in Eqs.10.85 and 10.88.
More precisely, Eq.10.85 should read

$$I_{n,n'} = \int_{q_z} dq_z \int_z dz \int_{z'} dz' \xi_{n'}^{\dagger}(z) \xi_n(z) \xi_n(z') \xi_n^{\dagger}(z') \frac{e^{iq_z(z-z')}}{q^2 + q_z^2}$$

Similarly, the integral in Eq.4.88 should read

$$\int_{z} dz \int_{z'} dz' \xi_{n'}^{\dagger}(z) \,\xi_{n}(z) \,\xi_{n'}(z') \,\xi_{n}^{\dagger}(z') \,e^{-q|z-z'|}$$