

Necmettin Yildirim and Michael C. Mackey. 2003. Feedback regulation in the lactose operon: a mathematical modeling study and comparison with experimental data. *Biophys. J.* 84:2841–2851.

The following two parameters should be added to the list of parameters given in Table 1 on page 2843.

$$\beta_{L2} = 1.76 \times 10^4 \text{ min}^{-1}.$$

$$K_{L2} = 9.7 \times 10^{-4} \text{ M}.$$

The parameter β_L in Eq. 5 on page 2842 should read β_{L1} . All the simulations and the results remain unchanged.

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Frederick Sachs. 2006. Probing the double layer: effect of image forces on AFM. *Biophys. J.* 91:L14–L15.

COMMENT TO THE EDITOR

The referenced article showed that the Poisson-Boltzmann (PB) equations predict that a neutral AFM probe will be repelled by a charged surface. The title of the article implied that the repulsion was caused by the image charge effects of the low dielectric tip dispersing the electric field. Although the forces are correct (2), the dominant repulsive term is not the image force but the entropic contribution of the ions excluded from the diffuse layer next to the charged substrate by the presence of the (neutral) tip. This is easily shown by repeating the finite element calculation with different dielectric constants of the tip; the repulsive forces are nearly independent of the dielectric constant.

Alternately, Biesheuvel (1) solved the PB equation for the case of parallel asymmetric planar surfaces with one charged and the other neutral, calculated the free energy and, applying the Derjaguin approximation (3), calculated the force between a spherical AFM tip and a charged planar substrate. This PB model gives a similar force distance relationship as the finite element calculation.

I would like to point out two typographical errors in the original article: the lipid charge density of the membranes was $1e/0.7\text{nm}^2$, not $1e/7\text{nm}^2$. In the caption of Fig. 4, the tip-membrane distance should be 0.1 nm instead of 1 nm.

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REFERENCES

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2. Fan, T. H., and A. G. Fedorov. 2003. Analysis of hydrodynamic interactions during AFM Imaging of biological membranes. *Langmuir*. 19:1347–1356.
3. Israelachvili, J. 1991. *Intermolecular and Surface Forces*. Academic Press, London, UK and New York.
4. Sachs, F. 2006. Probing the double layer: effect of image forces on AFM. *Biophys. J.* 91:L14–L15.

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