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Correction: Extracting viscoelastic material parameters using an atomic force microscope and static force spectroscopy

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Correction

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This correction refers to *Beilstein J. Nanotechnol.* **2020,** *11,* 922–937. doi:10.3762/bjnano.11.77

In the "Useful Viscoelastic Quantities" section of the original publication, it is stated that the storage modulus (E') and storage compliance (J') are inverses of one another (Equation 10). Similarly, it is stated that the loss modulus (E'') and loss compliance (J'') are inverses of one another (Equation 11). However, it is the relaxance (Q) and retardance (U) that are inverses of one another *in the Laplace domain* (not in the time domain), leading to a more complex relationship between the moduli and their respective compliances. Translation between harmonic quantities can be accomplished through the expressions below, where $\tilde{E}$ is the absolute modulus and $\tilde{J}$ is the absolute compliance [1]:

$$E'(\omega)=\frac{J'(\omega)}{\tilde{J}(\omega)^2}, \tag{1}$$

$$E''(\omega)=\frac{J''(\omega)}{\tilde{J}(\omega)^2}, \tag{2}$$

$$J'(\omega)=\frac{E'(\omega)}{\tilde{E}(\omega)^2}, \tag{3}$$

$$J''(\omega)=\frac{E''(\omega)}{\tilde{E}(\omega)^2}. \tag{4}$$

Absolute modulus and absolute compliance are calculated as:

$$\tilde{E}(\omega)=\left[\left(E'(\omega)\right)^2+\left(E''(\omega)\right)^2\right]^{\frac{1}{2}}, \tag{5}$$

$$\tilde{J}(\omega)=\left[\left(J'(\omega)\right)^2+\left(J''(\omega)\right)^2\right]^{\frac{1}{2}}. \tag{6}$$

The leftmost term in Equation 10 and Equation 11 in the original manuscript is thus incorrect and needs to be removed, leaving the following corrected expressions:

Equation 10:

$$J'(\omega) = J_g + \sum_{i=1}^{n}\left(\frac{J_n}{1+\tau_n^2\omega^2}\right),$$

Equation 11:

$$J''(\omega) = \sum_{i=1}^{n}\left(\frac{J_n\tau_n\omega}{1+\tau_n^2\omega^2}\right).$$

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