Confirmation of Jarzynski's equality based on single molecular and macroscopic interaction force measurements
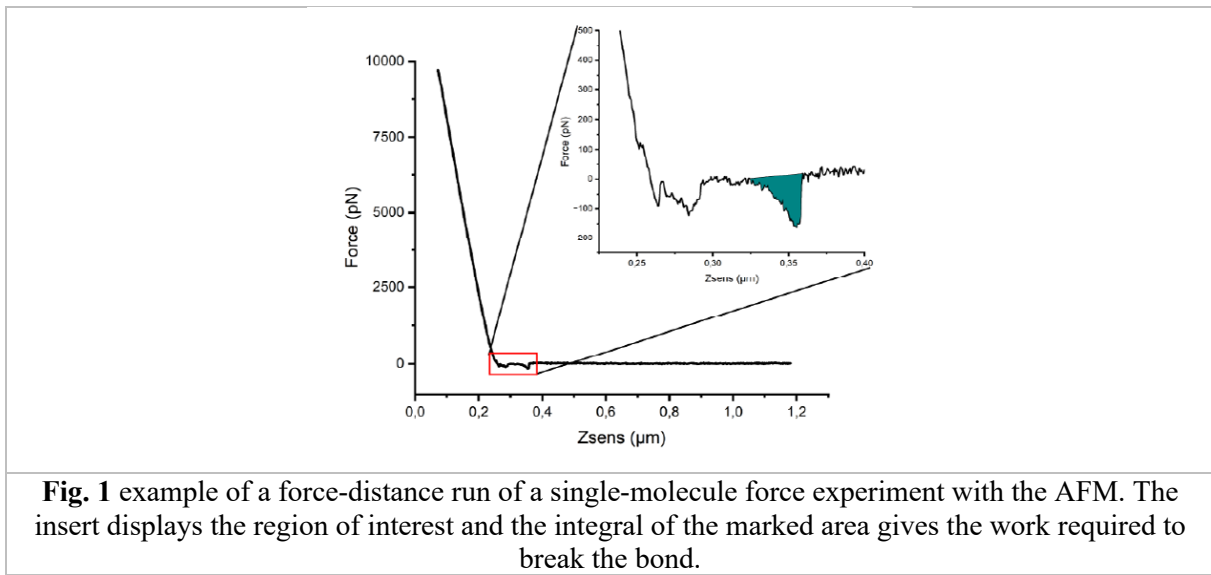
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$$exp\left(\frac{-\Delta F}{kT}\right) = \left\langle exp\left(\frac{-W_n}{kT}\right)\right\rangle_n \tag{1}$$

Jarzynski's equality relates the free energy difference ΔF to the work W_n done on the system with k being the Boltzmann factor and T being the temperature.

Fig. 1 example of a force-distance run of a single-molecule force experiment with the AFM. The insert displays the region of interest and the integral of the marked area gives the work required to break the bond.

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