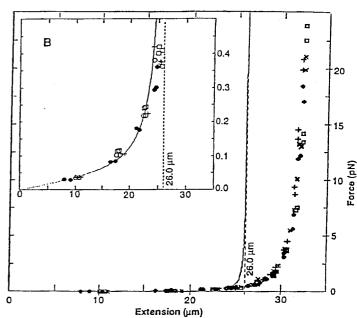


Fig. 3. (A) Force versus extension data for four different  $\lambda$ -dimer molecules ( $\bullet$ ,  $\Box$ , +, and O) in 5 mM Na<sub>2</sub>HPO<sub>4</sub> buffer (10 mM Na<sup>+</sup>, pH 8.3). Inset: expanded vertical scale (0 to 0.5 pN). Continuous curves are from Eq. 2 assuming  $L=32.7~\mu m$  and b=500~Å (top), 1000 Å (middle), and



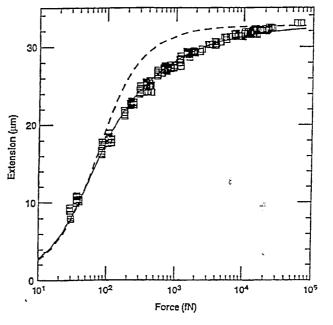
2000 Å (lower).  $L=32.7~\mu m$  was chosen to agree with the accepted value of 3.37 Å rise per base pair (30), not to fit the data. (B) The same data compared with a Langevin curve  $L=26~\mu m$  and b=1400 Å. These values were chosen to match the low-force slope.

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Fig. 1. Squares are experimental force versus extension data for 97 kb  $\lambda$ -DNA dimers from figure 3 of (2); solid line is a fit of the entropic force required to extend a worm-like polymer. The fit parameters are the DNA length ( $L=32.80\pm0.10~\mu\text{m}$ ) and the persistence length ( $A=53.4\pm2.3~\text{nm}$ ). Shown for comparison (dashed curve) is the freely jointed chain model (2) with  $L=32.7~\mu\text{m}$  and a segment length b=100~nm chosen to fit the small-x data.



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