PROBABILITY DISTRIBUTION OF BUBBLE LENGTHS IN DNA

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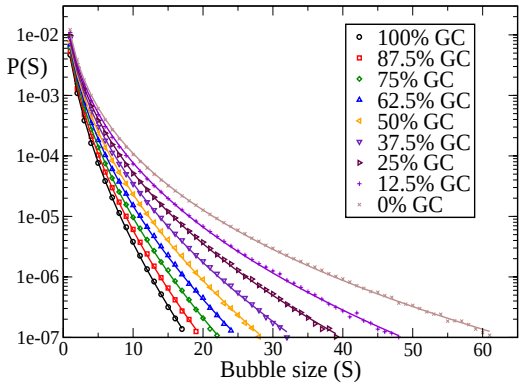
The probability distribution of bubble lengths in double-stranded DNA is presented for DNA segments of varying GC content. The distribution follows a stretched exponential law in the whole regime investigated, i.e. up to bubble widths of the order of tens of nanometers. The results are obtained with Monte Carlo calculations at temperature 310 K, using the Peyrard-Bishop-Dauxois model for the energetics of base-pair openings. The dependence of the stretched exponential parameters on the guanine-cytosine (GC) content is also
discussed.



The figure shows the results for the probability of having bubbles of size S in molecules with different GC content. The points for each molecule are fitted

with a single stretched exponential function.