Supplementary Information

Stick, stretch, and scan imaging method for DNA and and filament

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Table S1. Bending angle values for control and stretched DNAs. The angle values were measured from the images shown in Figure S4.

Sample #	Control	Control	1	2	3	4	5	6	7
Angle/°	122.4	80.7	174.2	175.6	180	180	166.4	180	180
Sample #	8	9	10	11	12	13	14	15	16
Angle/°	175.5	169.4	180	179.7	168.9	168.9	165.8	174	167.4



Figure S1. Direction of the magnetic beads after stretching. DNA-tethered magnetic beads stick to each other and are aligned along straight lines in SEM images. Left, overall view; right, enlarged view of the area in black box. The directions of the lines (red arrow) were measured and were roughly in the direction of the magnetic field.



Figure S2. Counting the direction of the magnetic bead string after stretching. In the field of view of Figure S1, the directions of 251 magnetic bead strings were counted and found to follow a Gaussian distribution (SD=27, $R^2=0.97$), with a peak of 78 degrees. The directions of the lines (red arrow) were roughly in the direction of the magnetic field.



Figure S3. Calibrated force–distance profiles for 2.8-µm-diameter M280 and M270 Dynabeads using 15 beads.



Figure S4. Measurements of bending angles of DNAs. To compare the degree of bending of unstretched and stretched DNAs, the angle from the inflexion to the two ends of the DNA (yellow lines) was measured by ImageJ.



Figure S5. In some cases the end of the DNA adhering to the glass was blocked by a second magnetic bead. Normally, one end of the DNA adhered to a magnetic bead, while the other adhered to the glass (Figure 1). (A) SEM images of stretched DNA with M280 DynaBeads. (B) SEM photographs of stretched DNA with BeaverBeads of 5 μ m diameter.