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Separation of long DNA molecules through cleavage of hydrogen bonds under a stretching force LIZENG GAO, JIAMIN WU, University of Pittsburgh, JIANZHONG WU, University of California, Riverside, DI GAO, University of Pittsburgh — We report that long DNA molecules of different lengths can be separated under a stretching force by cleaving hydrogen bonds that tether one end of the DNA to a substrate. This separation method can be implemented with a simple direct current electric field, does not require separation matrices, and in principle has no upper limit on the length of the DNA that can be efficiently separated. We here demonstrate efficient separation of lambda DNA (48,502 base pairs) from human genomic DNA ($> 100,000$ base pairs) using this method.

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