

Abstract for an Invited Paper
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The Mechanics of the Human Genome

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Each of our cells contains 1 meter of DNA that is tightly wrapped to fit inside the $\sim 5 \mu$ wide nucleus of the cell. This highly condensed state of our DNA plays a central role in how the information in our genes is replicated, read and repaired. Yet, the mechanics by which the genome organization regulates the processing of DNA remains a mystery. I will discuss what is currently understood about the first level of genomic organization, the nucleosome - a 50 nm stretch of DNA tightly wrapped ~ 2 times around a protein core. Recent measurements from our group suggest how mechanical properties of our genome could regulate gene expression and DNA repair.