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Mechanics of DNA Sticky End Joints EHSAN BAN, CATALIN PICU, Rensselaer Polytechnic Institute — Cohesive DNA sticky ends along with synthesis of stable branched DNA molecules have enabled self assembly of versatile new DNA structures including DNA crystals. Sticky end joints are formed by pairing of complimentary unpaired bases at the end of two DNA molecules. In this work mechanics of the DNA sticky end joints is investigated by using molecular dynamics simulations. Effects of base sequence, joint length, and salt concentration on the mechanical behavior of the joints is studied. The results have implications in understanding the mechanics of DNA crystals and other structures containing sticky end joints.

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