

It is recommended to read some articles and reports to get familiar with the subject of the research.

I. For experiments with unknotting and re-knotting:

1. Knots and Random Walks in Vibrated Granular Chains by E. Ben-Naim et al. *Phys. Rev. Lett.* **86**, No 8 (2001).
2. A Knotty DNA Problem <http://focus.aps.org/story/v12/st25>
3. Untangling Knots in Lattices and Proteins by Rhonald Lua, University of Minnesota (mathematical concepts of knots).
4. DNAtalk by Julia Collins, Feb1 2007.
5. Knotting probability of a shaken ball-chain by J. Hickford et al., *Phys. Rev. E* **74**, 052101 (2006).
6. UC San Diego Physicists Tackle Knotty Puzzle by Sherry Seethaler: 2007.
7. Behavior of Complex Knots in Single DNA Molecules by Xiaoyan R. Bao, Heun Jin Lee, and Stephen R. Quake, *Phys. Rev. Lett.* **91**, 265506 (2003)
<http://prl.aps.org/pdf/PRL/v91/i26/e265506>

Additional sources

- a) Maxwell Demon and Topology Simplification by Type II Topoisomerases by Alexander Vologodskii. Department of Chemistry, New York University, New York, NY 10003
- b) Mean unknotting times of random knots and embedding by Yao-ban Chan et al. (2007).

II. For experiments with self-assembly of vibrating chains:

1. Self-Assembly at All Scales by G.M. Whitesides et al. *Science* **295**, 2418 (2002).
2. Spontaneous spirals in vibrated granular chains by R.E.Ecke et al. *Center for Nonlinear Studies*, Los Alamos National Laboratory.
3. The Packing of Granular Polymer Chains by Ling-Nan Zou et al. *Science*, **326**, No 5951 (2009).
4. Structure and dynamics of vibrated granular chains: Comparison to equilibrium polymers by Kevin Safford et al. *Phys. Rev. E* **79**, 061304 (2009)
5. Experimental characterization of vibrated granular rings by Z.A.Daya et al. *Eur.Phys.J.E* **21**, 1-10 (2006)

Additional sources

- a) Simulation and dynamics of entropy-driven, molecular self-assembly processes by Bernd Mayer et al. *Phys. Rev. E*, **55**, No 4. 1997
- b) Self-organized and Self-assembled Structures by R. C. Desai and R. Kapral (2009) (The book is available at the Department of Physics library).