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Dorothy Buck*, Dept of Maths & Centre for Integrative, Systems Biology & BioInformatics, Imperial College London, London, sw7 2az, United Kingdom. *Knotted DNA: Mathematical Models and Biological Consequences.*

Abstract: Motivated both by drug development (chemotherapeutics and antibiotics) and synthetic biology (including GMOs), we'll discuss recent work on knotted and linked DNA molecules. Using several case studies as examples, we'll consider the topological techniques used to model the fundamental cellular processes that knot and link DNA. We'll explore the biological ramifications of DNA knotting and linking, and how the results of these topological models can inform experimentalists, aid drug development and further synthetic biology. (Received February 05, 2014)