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Pore translocation of knotted DNA chains ANTONIO SUMA, CRISTIAN MICHELETTI, SISSA, International School for Advanced Studies, via Bonomea 265, I-34136 Trieste, Italy — Biopolymers, such as DNA, can be long enough to become spontaneously knotted. This can have detrimental effects on their functionality in biological contexts, and in single-molecule manipulation experiments too. A relevant example is the translocation of DNA through biological or solid-state nanopores, which can become hindered by the presence of knots. We report here on a first systematic theoretical and computational investigation of such translocation for knotted DNA chains and elucidate the sophisticated, and even counterintuitive interplay of DNA topology, geometry and the strength of the applied tractive force ¹ ².

¹A. Rosa, M. Di Ventra and C. Micheletti. *Phys. Rev. Lett*, 2012, 109 , 118301

²A.Suma, A. Rosa and C. Micheletti. *ACS Macro Letters*, 2015, 4(12), 1420-1424

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