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Solvent-induced Collapse Transition in 2D Kinetoplast DNA[1]

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— Kinetoplasts are a complex DNA structure consisting of circles that are linked together to form a network which resembles chain-mail armor. There is theoretical interest in the behavior of 2D materials, including thermally-induced crumpling. Kinetoplasts can serve as a model 2D polymer, where their size as determined by optical fluorescence microscopy can vary depending on solvent quality, where water serves as a good solvent and ethanol as a poor solvent. We aimed to observe the 2D version of the coil-globule transition by measuring diffusivity and radius of gyration of kinetoplasts as a function of ethanol concentration. We observed a transition in the kinetoplast's shape near 60-70

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