



"Soft-Matter Seminar"

Intricate knots in proteins: statistics, function and evolution

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Abstract:

Protein knots, mostly regarded as intriguing oddities, are gradually being recognized as significant structural motifs. These elusive knots are present in the backbone of only about 1 in 200 proteins. It is by and large unclear how these exceptional structures actually fold, and only recently, experiments and simulations have begun to shed some light on this issue. In this talk I will present an overview of these peculiar structures from the current version of the Protein Data Bank and discuss some particularly intriguing examples of this set as well as evolutionary and functional implications. I will also discuss knottedness in simple polymer models which share certain properties with proteins and DNA.

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