

ATELIER «NOUVELLES AVENUES EN PROCESSUS SPATIAUX ALÉATOIRES»
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Branched polymers

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A branched polymer is a finite, connected set of non-overlapping unit balls in space. The powerful “dimension reduction” theorem of Brydges and Imbrie permits computation of the volume of the space of branched polymers of size N in dimensions 2 or 3. We will show how these and some related computations can be done using elementary calculus and combinatorics. Results include methods for random generation, asymptotic diameter in 3-space, and a combinatorial proof of the notorious “random flight” problem of Rayleigh and Spitzer.

This is joint work with Rick Kenyon (Brown).