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Seed Seminar of Mathematics and Physics

Mercredi 12 Mars 2025, 10 :30
IHES, Amphithéâtre Léon Motchane
Domaines : math-ph

Titre : *The scaling limit of the volume of loop-O(n) quadrangulations*

Orateur : **William Da Silva (University of Vienna, Austria)**

Résumé : *We study the volume of rigid loop-O(n) quadrangulations with a boundary of length 2p in the critical non-generic regime. We prove that, as the half-perimeter p goes to infinity, the volume scales in distribution to an explicit random variable. This limiting random variable is described in terms of the multiplicative cascades of Chen, Curien and Maillard, or alternatively (in the dilute case) as the law of the area of a suitable unit-boundary quantum disc, as determined by Ang and Gwynne. Our arguments go through a classification of the map into several regions, where we rule out the contribution of bad regions to be left with a tractable portion of the map. One key observable for this classification is a Markov chain which explores the nested loops around a size-biased vertex pick in the map, making explicit the spinal structure of the discrete multiplicative cascade. This talk is based on joint work with Élie Aïdékon and XingJian Hu (Fudan University).*