



ID de Contribution: 78

Type: **Lecture / lecture series**

Critical geometry approach to three-dimensional percolation

jeudi 6 mai 2021 15:00 (1 heure)

I will describe a theory of bounded critical phenomena based on a geometric approach, introduced in the article arXiv:1904.08919: a curved metric, conformal to the euclidean one, is added to a bounded domain, with the requirement of constant curvature, to enforce homogeneity.

This leads to the so-called Yamabe equation, which is then modified, with the introduction of a fractional Laplacian, to account for the anomalous dimension of the fields. Solving this equation provides a point-dependent scale for the system, which can be used to determine one-point and two-point spin correlations functions.

After briefly reviewing results for the Ising and XY models, we compare the Yamabe predictions with numerical simulations of continuum percolation in three dimensions, and we present a high-precision estimate of its anomalous dimension η .

Orateur: GALVANI, Alessandro (SISSA)