Seminar/Talk

Nesting of double-dimer loops and CLE(4)

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Host: Laszlo Erdös, Jan Maas

In 2013 Miller, Watson and Wilson introduced the notion of a nesting field associated with a conformal loop ensemble (CLE). The nesting field is supposed to count the number of CLE loops surrounding a given point minus its expectation; to define this field rigorously, they proved that the number of CLE loops surrounding a disc of radius epsilon minus its expectation, considered as a function of the center of the disc, converges in the space of distributions as epsilon tends to zero, and the limit is conformally invariant. We consider a similar nesting field defined with respect to the double-dimer loop ensemble, i.e. the loop ensemble that appears when one superimposes two independent dimer configurations. As this loop ensemble is conjectured to converge to CLE(4) in the scaling limit, one can expect the corresponding behaviour of the nesting field. In this talk I want to report on the following two results concerning the double-dimer nesting field in the upper half-plane: Local behaviour: we prove that, for any fixed point in the upper half-plane, the number of double-dimer loops surrounding this point minus its expectation converges to a normal distribution if rescaled properly. Note that the same statement for CLE loops follows easily from conformal invariance.Global behaviour: building on the results of Kenyon, Dubedat and B-Chelkak we prove that double-dimer nesting fields converge to the nesting field of CLE(4).Based on the joint work with Konstantin Izyurov (University of Helsinki).

Monday, October 21, 2024 05:00pm - 06:00pm

Central Bldg / O1 / Mondi 2 (I01.O1.008)

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