



Mathematics > Probability

The Hausdorff dimension of the CLE gasket

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(Submitted on 4 Jun 2012)

The conformal loop ensemble CLE_κ is the canonical conformally invariant probability measure on non-crossing loops in a proper simply connected domain in the complex plane. The parameter κ varies between $8/3$ and 8 ; $CLE_{8/3}$ is empty while CLE_8 is a single space-filling loop. In this work we study the geometry of the CLE gasket, the set of points not surrounded by any loop of the CLE. We show that the almost sure Hausdorff dimension of the gasket is bounded from below by $2-(8-\kappa)(3\kappa-8)/(32\kappa)$ when $4 < \kappa < 8$. Together with the work of Schramm-Sheffield-Wilson (2009) giving the upper bound for all κ and the work of Nacu-Werner (2011) giving the matching lower bound for $\kappa \leq 4$, this completes the determination of the CLE_κ gasket dimension for all values of κ for which it is defined. The dimension agrees with the prediction of Duplantier-Saleur (1989) for the FK gasket.

Comments: 23 pages, 7 figures

Subjects: **Probability (math.PR)**; Statistical Mechanics (cond-mat.stat-mech); Mathematical Physics (math-ph); Complex Variables (math.CV)

MSC classes: 60J67 (Primary) 60D05 (Secondary)

Cite as: [arXiv:1206.0725](#) [math.PR]

(or [arXiv:1206.0725v1](#) [math.PR] for this version)

Submission history

From: Jason Miller [[view email](#)]

[v1] Mon, 4 Jun 2012 19:58:36 GMT (2371kb,D)

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