

Institut für Diskrete Mathematik

Combinatorics Seminar

Friday 27th January 12:15

Online meeting (Webex)

On the enumeration of planar maps with tight boundaries

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(ENS Lyon)

We consider the enumeration problem of bipartite and quasi-bipartite planar maps with internal faces, counted with Boltzmann weights, and external faces with prescribed degrees. The generating series for these objects solves a simple functional equation discovered by Eynard and generalized by Collet and Fusy, who also proposed a bijective derivation based on the Bouttier-Di Francesco-Guitter bijection. One observation is that the functional equation becomes even simpler if one asks that the external face boundaries be tight, in the sense that their lengths are minimal in their respective free homotopy class, in the surface obtained by removing one point from every external face. We give bijective interpretations, based on geometric decompositions, for this simpler formula in two particular cases: when there are three external faces (pairs of pants), and when there are no internal faces (tight maps). I will discuss implications of these for the statistics of large planar maps, as well as for the quasi-polynomiality for the number of plane tight maps observed by Norbury. This is based on joint work with Jérémie Bouttier and Emmanuel Guitter.

Meeting link:

<https://tugraz.webex.com/tugraz/j.php?MTID=m44797227fd680cc7956ebb840b6f033a>

Meeting number: 2730 500 3129

Password: vQydpG372D4

Joshua Erde, Mihyun Kang