The space of invariant geometric laminations of degree d

Lex G. Oversteegen

overstee@uab.edu

Thurston introduced d-invariant geometric laminations in 1985 (i.e., closed collections of non-crossing chords of the unit disk invariant under the degree d covering map $\sigma(z) = z^d$ on the unit circle) as a tool to model complex polynomials of degree d acting on the complex plane. He showed that if $d = 2$ a quotient of the space of 2-invariant laminations can be modelled by a lamination, which he called QML, so that the quotient of the unit disk which identifies two points if they are joined by a chord in QML is a locally connected continuum $\mathcal{M}_2^{Comb}$ which models the Mandelbrot set $\mathcal{M}_2$ (i.e., there exists a monotone map $m : \mathcal{M}_2 \to \mathcal{M}_2^{Comb}$). Douady has shown that m is a homeomorphism if and only if $\mathcal{M}_2$ is locally connected.

Thurston's proofs make heavy use of the fact that $d = 2$ and do not apply if $d > 2$. This talk will focus on partial generalizations of Thurston's result to the case $d > 2$.

TOPOSYM
Prague 2016