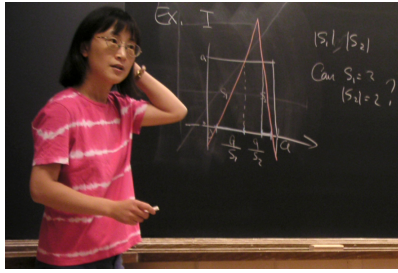


## Complex dynamics and quasi-conformal geometry.



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# The Milnor-Thurston determinant and the Ruelle transfer operator.

*lundi 23 octobre 2017 14:30 (55 minutes)*

The topological entropy

$h_{top}$  of a continuous piecewise monotone interval map measures the exponential growth in the number of monotonicity intervals for iterates of the map.

Milnor and Thurston showed that  $\exp(-$

$h_{top})$  is the smallest zero of an analytic function, now coined the Milnor-Thurston determinant, that keeps track of relative positions of forward orbits of critical points. On the other hand  $\exp(h_{top})$  equals the spectral radius of a

Ruelle transfer operator  $L$ , associated with the map. Iterates of  $L$  keep track of inverse orbits of the map.

For no obvious reason, a Fredholm determinant for the transfer operator has not only the same leading zero as the

M-T determinant but all peripheral (those lying in the unit disk) zeros are the same.

In the talk I will show that on a suitable function space, the dual of the Ruelle transfer operator has a regularized determinant, identical to the Milnor-Thurston determinant, hereby providing a natural explanation

for the above puzzle. This work was inspired by a collaboration with Tan Lei in 2014.

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