BERS, BROWN AND LYAPUNOV

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The Sullivan dictionary provides a system of correspondences between the dynamics of rational maps and Kleinian groups, and was subsequently enriched by many authors. McMullen proposed to view Bers slices of Teichmüller space as analogues of the Mandelbrot set. A Bers slice sits as a bounded domain in an affine space of quadratic differentials (or of projective structures) on some Riemann surface X, which may thus be viewed as an analogue of the space of polynomials of degree d.

The Lyapunov exponent of the maximal entropy measure of a polynomial defines a natural psh function on this space. It can be computed using the so-called Manning-Przytycki formula:

$$\chi(f) = \log d + \sum_{c \text{ critical}} G_f(c)$$

(f a monic polynomial of degree d). $dd^c\chi$ is the bifurcation current as defined by De Marco.

In this talk I will describe a translation of these concepts through the Sullivan dictionary, and discuss some applications.

This is joint work with Bertrand Deroin.