I. Binder

Harmonic measure and polynomial Julia sets.

(Joint work with N. Makarov and S. Smirnov)

For a finite measure ω in the complex plane, we define

$$f_\omega^+(\alpha) := \dim\{\alpha_\omega(z) \leq \alpha\},$$

where $\alpha_\omega(z)$ is the lower pointwise dimension of ω:

$$\alpha_\omega(z) := \liminf_{\delta\to 0} \frac{\log \omega B(z,\delta)}{\log \delta}.$$

The *universal dimension spectra* $\Phi(\alpha)$ and $\Phi_{sc}(\alpha)$ are defined to be the supremum of $f_\omega^+(\alpha)$ taken over all harmonic measures ω of arbitrary plane domains, and of arbitrary simply connected plane domains respectively.

It is conjectured that $\Phi(\alpha) = \Phi_{sc}(\alpha)$ for $\alpha \geq 1$. Using fractal approximation one can reduce the conjecture to the case of conformal Cantor sets. We establish the equality of the universal spectra for the polynomial Julia sets.