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Preimages of points under series of iterates of finite Blaschke products

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Consider a finite Blaschke product f, let $\{a_n\}$ be a sequence of complex numbers tending to zero which is not absolutely summable and formally denote

$$F(z) = \sum_{n=1}^{\infty} a_n f^n(z), \qquad z \in \partial\mathbb{D},$$

where f^n is the n-th iterate of f. Given a point $z \in \partial\mathbb{D}$ it is not necessary that the series $F(z)$ is convergent and this could be the case for almost every point. Nonetheless, a recent result of A. Nicolau and J. J. Donaire shows that given any point $w \in \mathbb{C}$, there is at least one point $z \in \partial\mathbb{D}$ such that the series $F(z)$ converges to w. We will give a quantitative version of this result. In particular, we will see that the set of points where $F(z)$ converges to a fixed $w \in \mathbb{C}$ has Hausdorff dimension 1.

More information at: `https://mat.uab.cat/web/seminarianalisi/`