Barcelona Analysis Seminar **2023–2024**

URL. https://mat.uab.cat/web/seminarianalisi/

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Time. 15:00 CET

Room. CRM A1 (Universitat Autònoma de Barcelona)

Online streaming. Click here to join.

Shapes of trees

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A finite tree in the plane is said to be *conformally balanced* if every edge has the same harmonic measure as seen from infinity, and harmonic measures on the two sides of every edge are identical. It is well known that a finite tree has a conformally balanced shape, which is unique up to scale.

In this talk, we study shapes of infinite trees, focusing on the case of an infinite trivalent tree. To conformally balance the infinite trivalent tree, we truncate it at level n, form the true tree $\mathcal{T}_n$ and take $n \to \infty$. We show that the Hausdorff limit of the $\mathcal{T}_n$ contains the boundary of the developed deltoid, the domain obtained by repeatedly reflecting the deltoid in its sides. We also give a sequence of trees which produces the Cauliflower, the Julia set of $z^2 + 1/4$. (This is joint work with P. Lin, S. Rohde and E. Sygal.)