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FINITE TYPE ITERATED FUNCTION SYSTEMS: A COMPUTATIONAL PERSPECTIVE

The fractal dimension of a self-similar set is easy to compute in the presence of the open set condition. Lacking the open set condition, the problem is much more difficult. The finite type condition is a weaker assumption than the open set condition that also allows the computation of fractal dimension. Unfortunately, the finite type condition does not yield a simple formula but an algorithm that generates a matrix; the dimension may then be computed in terms of the spectral radius of this matrix. We present a program that automates this procedure and discuss some of the mathematical details that arise in the implementation.

References

[1] Yang Wang and Sze-Man Ngai, *Hausdorff dimension of overlapping self-similar sets*, J. London Math. Soc. **63**(2001), 655–672.