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Local dimensions of self-similar measures with overlap

The local dimension of a measure is a way to quantify its local behaviour. For example, the local dimension of Lebesgue measure is one everywhere, reflecting the fact that it is uniform in its concentration. For self-similar measures that satisfy a suitable separation condition, it is well known that the set of attainable local dimensions is a closed interval, but for measures which fail to satisfy this condition the situation is more complicated and unclear. In this talk we will discuss a general theory for a class of measures with overlap, which includes interesting examples such as Bernoulli convolutions and convolutions of Cantor measures, and we will see that different phenomena can arise.