Rec 9/10

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Cantor Middle thirds set

has Hausdorff dimension $\frac{\log 2}{\log 3}$.

3d Cantor dust has H-d $\frac{\log 8}{\log 3}$.

Metric vs. topological notions of continuity:

(X, τ) (Y, ρ)

$f: X \to Y$ cts if $\forall U \in \rho$, $f^{-1}(U) \in \tau$.

(X, d) (Y, r)

$f: X \to Y$ cts if $\forall \varepsilon, x \in X$, $\exists \delta > 0$ s.t. $d(x,y) < \delta \Rightarrow r(f(x), f(y)) < \varepsilon$.

$f^{-1}(f(G)) \supset G$. $f(f^{-1}(E)) = E$.