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PEANO CURVES FOR FRACTALS

In 1890 Peano discovered a densely self-intersecting curve that passes through every point of the unit square. His purpose was to construct a continuous mapping from the unit interval onto the unit square. Since Peano's work there have been many other constructions of space filling curves. These curves can be made to have various desirable properties such as Hölder continuity and self-similarity. In this talk, we consider the following problem: Can we construct Peano curves that fill fractals such as the Sierpinski Gasket? As it turned out, Sierpinski had used precisely a Peano curve to construct the Sierpinski Gasket. In this talk we consider the existence and construction of Peano curves for a far broader class of fractals. We also mention some of the interesting applications of such Peano curves.