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Fractal structures in functions related to number theory.

Benoit Mandelbrot changed the perception of foreground and background in mathematics and physics, showing the ubiquitous presence of fractal structures in many structural theories. We will discuss some examples coming from functions having connections to number theory: The Takagi function, space-filling curves, and iterating $(3x+1)$ -like maps. (Received September 19, 2011)