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# On the Fibonacci Mandelbrot set

For $\beta \in \mathbb{C}$ with $|\beta| < 1$ define the contractions
$h_0(z) = \beta z$ and $h_1(z) = \beta z + 1$
and consider the attractor $A_\beta$ of the iterated function system $\{h_0, h_1\}$. In 1985 Barnsley and Harrington introduced the "Mandelbrot set for pairs of linear maps" which is the set of all $\beta$ with connected attractor $A_\beta$. This set has been thoroughly studied by many authors.

In the present talk we consider a variant of this Mandelbrot set. In particular, we consider the attractors of the iterated function system $\{f_0, f_1\}$ given by
\[
f_0(z)=\beta z,\; f_1(z)=1+\beta^2z
\]
and study the associated Mandelbrot set $\mathcal{M}$. Among other things we show that $\mathcal{M}$ is connected.
The structure of the iterated function system $\{f_0, f_1\}$ is related to the Fibonacci Language which is the subshift of finite type over $\{0, 1\}$ defined by forbidding the occurrence of two consecutive ones. This language and its difference language play an important role in the construction.

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