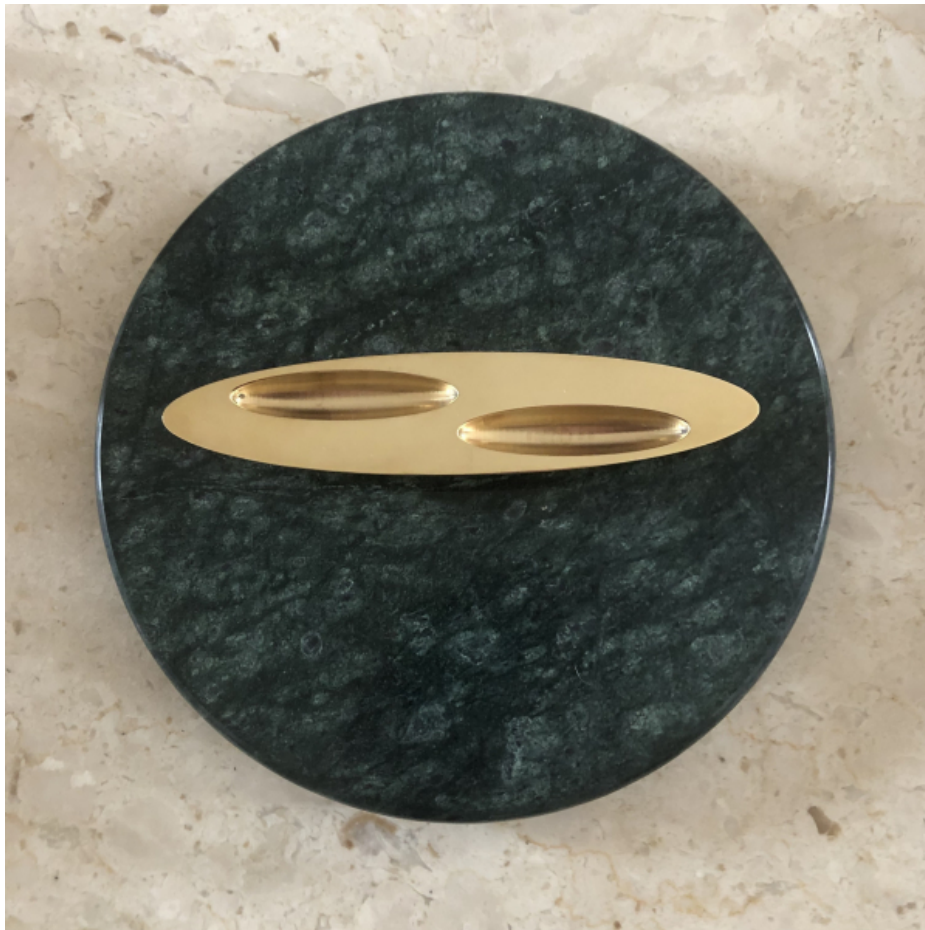


# Mathematical Art Galleries

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I am a physicist with long-standing interests in and contributions to astronomy, art and archaeology. I have also had a life long love of scientific wonders and curiosities. The DeltaCelt combines all of these threads in the design of a unique, new work of kinetic sculptural art. During the past five years I have designed a number of new dynamical objects based on each of the major mathematical constants: e, i, pi and phi. I have also designed a new version of the uphill roller demonstration. Much of the development of these objects has been enabled by my access to rapid prototyping and CNC machining capabilities. Design of the DeltaCelt was motivated by my desire to celebrate the dynamical work of my good friend Mitchell J. Feigenbaum.



DeltaCELT  
15 x 3 x 2 cm  
brass  
2021

I have developed a new kinetic art work. It is called the "DeltaCELT". It is a new mathematically designed form of the ancient stone object known as a celt (or more recently a rattleback, anagyre or wobblestone). Its overall shape is that of a bisected prolate ellipsoid with the ratio of the major axis to the minor axis equal to the Feigenbaum dynamical constant  $\delta \sim 4.669\dots$  Two offset prolate ellipsoidal grooves with the same major/minor axis ratio are inset into the flat top surface of the body. These cause the object to reverse spin direction when spun clockwise. The object can be made with the grooves reversed so as to give it the opposite preferred spin direction. Weights can be placed in the

grooves to also adjust the spin dynamics.

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