

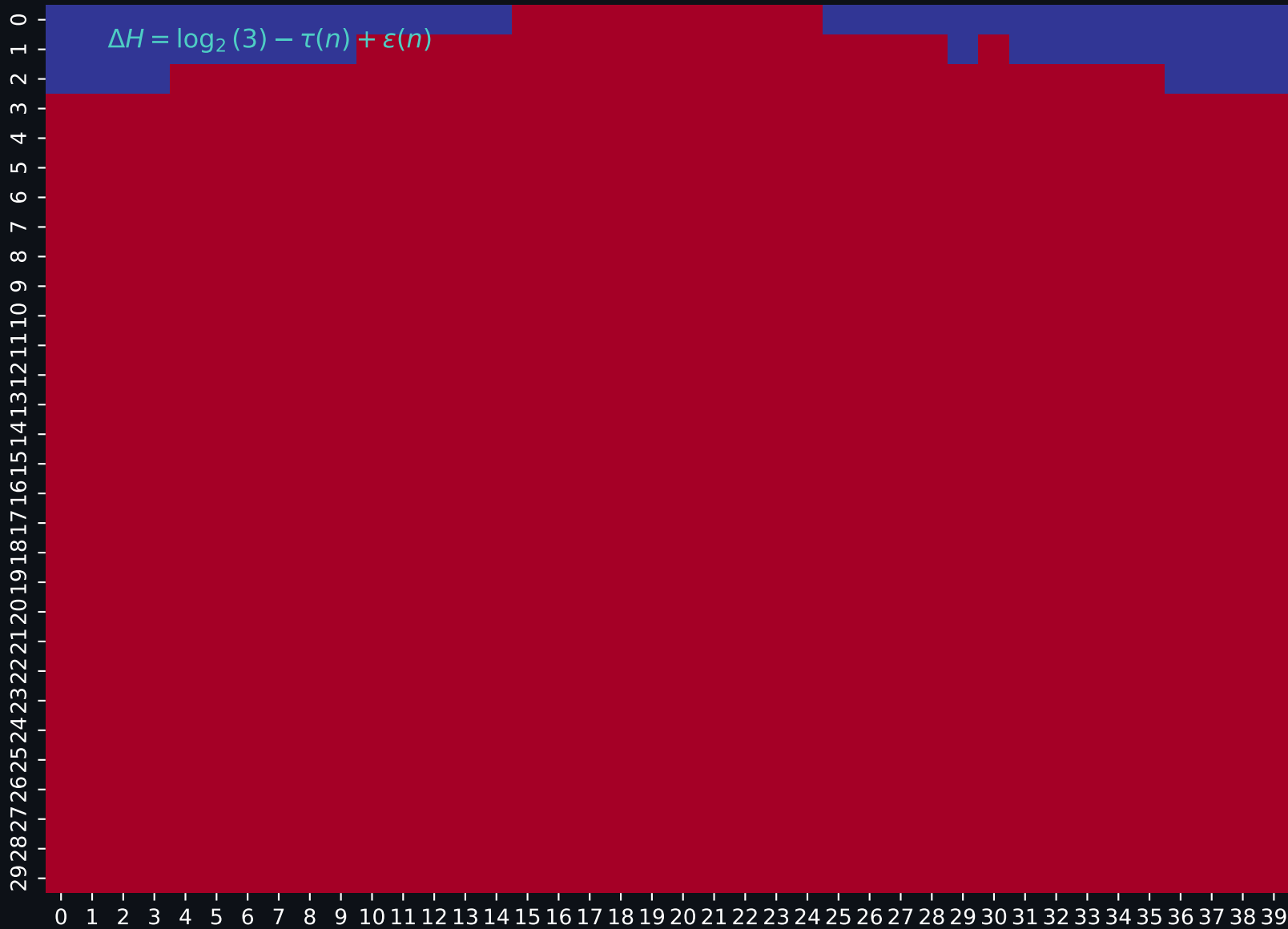
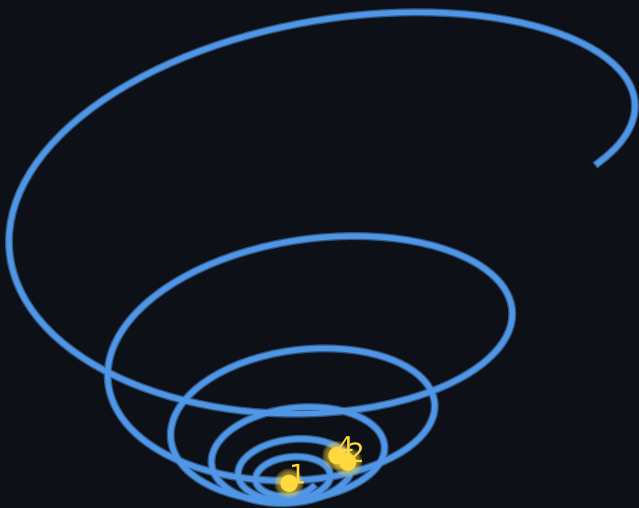
The Collatz Conjecture: A Cryptographic Perspective

Bridging Number Theory and Modern Cryptography

Global Convergence & Cycle Structure

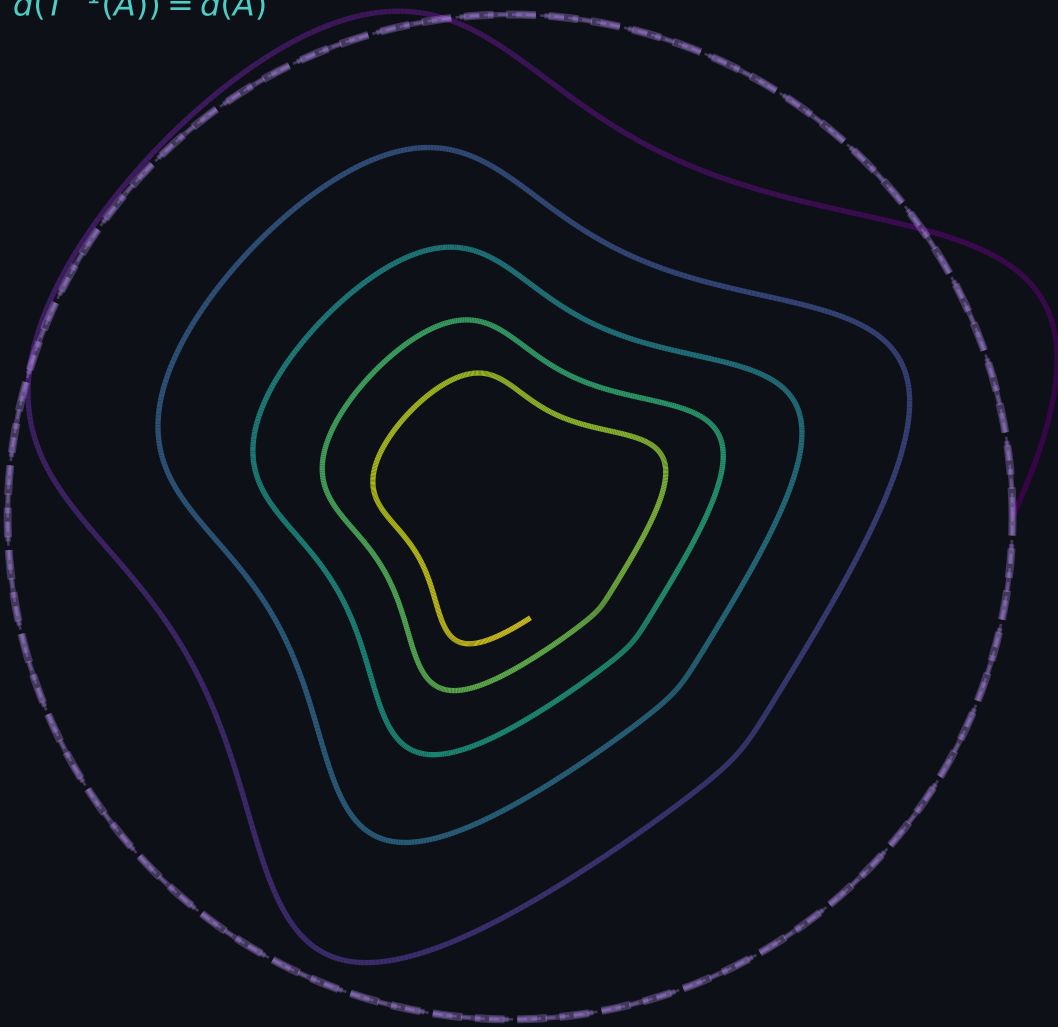
Bit Pattern Avalanche & Information Flow

$$T_{\text{odd}}(n) = \frac{3n+1}{2^{\tau(n)}}$$



Ergodic Behavior & Measure Preservation

$$d(T^{-1}(A)) = d(A)$$



Entropy Reduction & Compression

$$P(\tau = k) = 2^{-k} + O(n^{-1/2})$$

