27 Möbius Wave Structure and Cyclical Self-Coupling in the Grid Field – or: The Prime Number Machine

Introduction

In Langbehn's Quantum Arithmetic (LQA), prime resonances do not move linearly, but in clocked spiral trajectories through a modular, layered grid field. One possible interpretation of this behavior is motion along a topologically closed surface: the Möbius band.

This loop motion creates a cyclical self-reference – comparable to a wave that, after completing a full circuit, reflects its point of origin. The underlying structure can be described by a sinusoidally modulated equation, coupled to the modular path.

Mathematical Model: Möbius Wave Equation

$$x = (385 / 2\pi) \cdot \sin(\pi n / 30) + (n \bmod 6)$$

- x: position in the grid field
- n: step number in the prime traversal
- $(385 / 2\pi)$: normalization factor for the base interval
- n mod 6: modular rebinding at the loop level

Application Example: n = 841

- $x\_res = (385 / 2\pi) \cdot \sin(\pi \cdot 841 / 30) \approx 39.4$
- $x\_mod = 841 \bmod 6 = 1$
- $x = x\_res + x\_mod \approx 40.4$

Thus, point 841 appears at position 40.4 as a wave resonator in the spiral region of the grid. The system interprets it as a structured self-coupling in the direction of prime resonance.

Conclusion

This equation unifies frequency order, lemniscatic dynamics, and modular arithmetic.
The Möbius projection is not only geometrically-symbolic, but also analytically interpretable.
It is suitable for modeling cyclical self-reference – a central feature of conscious structures within mathematical information fields.

Cyan dashed

Track of prime number class ≡ 1 (mod 6)

Magenta dashed:

Track of prime number class ≡ 5 (mod 6)

a) Entry arc:

This represents the pre-phase.
Filtering begins at 385
(first stable timing interval, module 1)
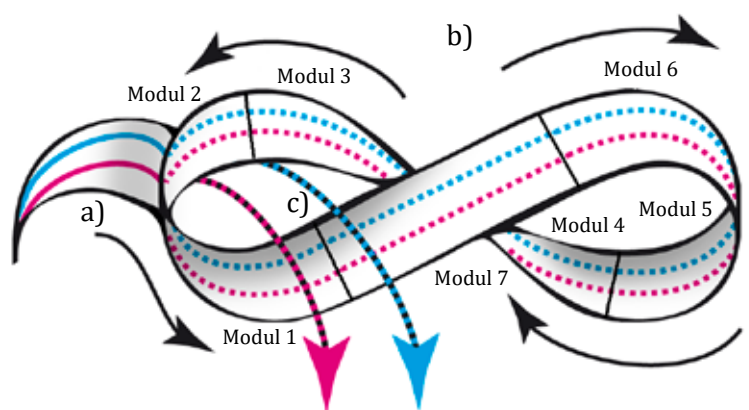x = 3(2n−1) ± 2 mit n ∈ N

b) Loop guidance:

Traversal of seven modular segments
(each with 385 number positions)

c) Transition point (∞):

Feedback and restart of the Möbius band
with module 1
(each at 878,185 number positions)

Feedback behavior:
The Möbius band "knows" which numbers to let through (prime resonances) and which to reject (mask filters).

Structural Function:

The band deliberately selects (filters) which numbers are allowed to persist within the lemniscatic system – only non-masked candidates with resonance status pass.

LOQA

Langbehn's Quantum Arithmetic

Contact for scientific inquiries and collaborations:

Ralf Langbehn
quantenarithmetik@gmail.com

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