

Exposé court

119 Prime functions

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The fundamental theorem of arithmetic says an essential fact about natural numbers: each natural number is uniquely expressible by a product of prime numbers. Similarly, we can factor a meromorphic function, only this time in terms of functional composition.

Suppose f is a meromorphic function satisfying

$$f = g \circ h \tag{1}$$

with g meromorphic and h entire or h meromorphic and g rational. Then the expression (1) is called a *decomposition* of f . If for all decompositions of f , g or h is linear, then f is *prime*.

In my talk, I will consider the conditions under which the extended Selberg class functions are prime. In addition, I will present the result that the Hurwitz zeta function is prime.

Bibliography

- [1] M. Dundulis, R. Garunkštis, E. Karikovas, and R. Šimėnas. Hurwitz zeta function is prime. *Mathematics*, 11(5), 2023.