



**WIGNER DISTRIBUTION ANALYSIS APPLIED
TO THE NUMBER THEORY**

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Abstract

Wigner distribution is a tool for signal processing to obtain instantaneous spectrum of a signal. From which, another representations of the Euler product can be obtained for Dirichlet series, which leads to the proof of the prime number theorem without the aid of the techniques of complex analysis.

Keywords and phrases: Wigner-Ville distribution, Dirichlet eta function, Mobius function, Euler product, prime number theorem.

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