
ROBERT VAUGHAN, Penn State University
Zeros of Dirichlet series

We are concerned here with Dirichlet series

$$f(s) = 1 + \sum_{n=2}^{\infty} \frac{c(n)}{n^s}$$

which satisfy a function equation similar to that of the Riemann zeta function, typically of the form

$$f(s) = 2^s q^{1/2-s} \pi^{s-1} \Gamma(1-s) \left(\sin \frac{\pi}{2}(s + \kappa) \right) f(1-s),$$

but for which the Riemann hypothesis is false. Indeed we show that the zeros of such functions are ubiquitous in the complex plane.