

## On the Riemann hypothesis

Xu Feng

The Riemann zeta function be:  $\zeta(s) = \frac{1}{n^s}$ ,

in which it has a geometric series:

$$\frac{1}{1^s} + \frac{1}{2^s} + \frac{1}{4^s} + \frac{1}{8^s} + \frac{1}{16^s} + \frac{1}{32^s} + \dots$$

and its geometric sequence is :

$$\frac{1}{1^s} \times \left(\frac{1}{2^s}\right)^{n-1}, \text{ and the common ratio is } \frac{1}{2^s}.$$

Because  $\frac{1}{1^s} = \left(\frac{1}{1}\right)^s = 1$ , so, its geometric sequence is  $\left(\frac{1}{2^s}\right)^{n-1}$  too.

but now, the Riemann zeta function includes the geometric series, so that the common ratio  $\frac{1}{2^s}$  belongs to the Riemann zeta function.

In the same, because  $\frac{1}{2^s} = \left(\frac{1}{2}\right)^s$ , in which its real part is  $\frac{1}{2}$ , so that the real part of the every non-trivial zeros of the Riemann zeta function is  $\frac{1}{2}$ .