

The Strange World of Numbers

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1. Introducing a strange equation

$$1 + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + \dots = \frac{\pi^2}{6}$$

Did you think it is strange? I think many people think so because sums of fractions relate to π . I guess many people believe π is only used when they calculate the area of circles. One professor in Ehime University also thought it strange when he was a high school student. That Professor is Yamasaki Yoshinori. He researches in the field of algebra called Analytic Number Theory. Zeta Function as a research subject. If you understand zeta function, you will understand the equation mentioned above.

There are several zeta functions. Among them, the one with the longest history is called Riemann's zeta function. (Professor Yamasaki is not directly studying Riemann's zeta function. He is studying other zeta functions.) This is a well-known hypothesis known as the Riemann hypothesis which deals with predictions. I won't go into details, but this hypothesis is one of the Millennium Prize Problems. If you solve the Millennium Problem, you will receive one million dollars. Prediction is so important that it becomes a millennium prize problem.

The Riemann hypothesis is closely related to prime numbers. In modern society, prime numbers support cryptology. Cryptology is necessary for secure communication. This means that Riemann's zeta function has become very relevant to society.

2. Mathematical Sciences research in Ehime University

There are 16 faculty researchers in the Mathematical Science Course, Department of Science, Faculty of Science, Ehime University. Our research can be broadly divided into four areas: algebra, analysis, geometry, and applied mathematics. Mathematic research is characterised by research that can be done with paper and pen. Prof. Yamasaki said that is all you need. I hope you become interested in mathematics research at Ehime University.

<Name>

Yoshinori Yamasaki

<Occupation>

Professor

Department of Mathematical Science,
Faculty of Science, Ehime University

<How he spends his free time>

Find math problems

Solve math problems

Play the drums

<Overseas experience>

2016/10-2017/03 Visiting Researcher,
City College of New York

2017/04-2017/06 Visiting Researcher,
Max Planck Institute for Mathematics

I'm interested in the infinite.

