MANY CHEERFUL FACTS

presents

$e^{\pi\sqrt{163}}$ is an almost-integer

a talk by Chul-hee Lee

13:10 – 14:00 on Thursday, October 25, in room **87**.

Note the exceptional location.

It is a very famous fact that x^2+x+41 generates prime numbers for $x = 0, 1, \cdots, 39$. However, this is not the end of the story. There is a great sequel to this:

$$e^{\pi\sqrt{163}} = 262537412640768743.99999999999925007\cdots$$

In fact, both of these are cheerful facts about the ring of integers $\mathbb{Z}[\frac{-1+\sqrt{-163}}{2}]$ involving lots of beautiful mathematics. In this talk, I will introduce what's behind the scenes and try to give an explanation. With this in hand, we can produce more examples:

$$e^{\pi\sqrt{43}} = 884736743.99977746603\cdots$$

$$e^{\pi\sqrt{67}} = 147197952743.9999986624\cdots$$

I am the very model of a modern Major General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the fights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse!

- Gilbert & Sullivan $P \circ P$

The website for Many Cheerful Facts is
http://www.math.berkeley.edu/~mcf