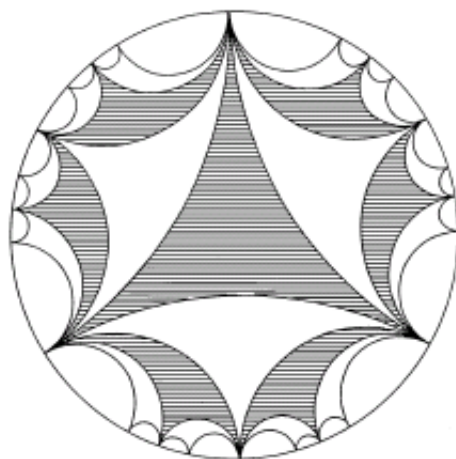# MANY CHEERFUL FACTS

presents

From Triangles to Automorphic Functions

a talk by Chul-hee Lee

2:10–3:00pm on Tuesday, September 16, in 1015 Evans.

Since you are in math department, you might have seen some pictures similar to this.

These are, in fact, congruent hyperbolic triangles filling the unit disk or equivalently, the upper half-plane. I will tell you how to read these pictures, how to find associated groups with them and how to construct automorphic functions with respect to those groups using well-known theorems of complex analysis. As an application, one line proof of Picard's little theorem will be provided. I will also briefly mention that the hypergeometric differential equations can be used to write these automorphic functions explicitly.

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://math.berkeley.edu/~mcf/`