

# MANY CHEERFUL FACTS

presents

## Everything You Always Wanted to Know About Abelian Torsion Groups (But Were Afraid to Ask)

a talk by John Goodrick

1:10 pm - 2:00 on Wednesday, September 28th, in room  
1015.

Most people don't think much about abelian groups after learning the classification of the finitely-generated ones. But can you think of an abelian group which is not a direct sum of cyclic groups? How many countable abelian groups are there? If  $G$  and  $H$  are abelian,  $G$  is a direct summand of  $H$ , and  $H$  is a direct summand of  $G$ , then are they necessarily isomorphic?

In this talk I will present Ulm's Theorem, which gives a remarkable classification of all countable abelian torsion groups, and I will show some applications of it.

*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  $P \circ P$