

MANY CHEERFUL FACTS

presents

Some Models Have Bigger Ones Than Others

a talk by Adam Booth

12:10 – 1:00pm on Wednesday, March 7, in room 1015.

ZFC, the accepted set of axioms for set theory, is woefully incomplete. Not just plain old incomplete (it would have to be that by Gödel's theorem if we wanted to be able to use it to talk about arithmetic and write it down), but woefully incomplete: it can't work out how to do infinite exponentiation, which sets of reals are Lebesgue measurable or many other things it really should be able to. There exists a collection of extensions to ZFC known as "large cardinal axioms". My talk will be an introduction to these: the different ways they form a hierarchy, their combinatorial characterizations, their metamathematical characterizations, and their successes and failures in acting as a "calibration" for undecidable statements.

*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/~slofstra/mcf>