

# MANY CHEERFUL FACTS

presents

## The Inverse Problem for Roulettes

a talk by Ryan Hynd

12:10 am - 1:00 on Wednesday, February 16th, in room  
1015.

If a plane curve A with reference point P is rolled without slipping on another curve B, then P traces out a new curve. The problem we discuss is as follows: given a pair of plane curves B and C, when does there exist a (unique) curve A with reference point P such that when A is rolled on B, P traces C.

*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  $P \circ P$