

School of Mathematics and Applied Statistics
2013 Colloquium Series
University of Wollongong

Title: Matrices that almost commute

Speaker: Adam Sørensen (University of Wollongong/University of Copenhagen)

Time and Date: Friday 28 June 2013, 2:30pm

Location: 6-210

Abstract: In this talk we will look at square matrices A, B that satisfy that AB is close to BA . That is to say, matrices A, B that almost commute. I will explain what it means (to operator algebraists) that two matrices are close. We will look at the questions of whether one can find another pair of matrices A', B' such that A' is close to A , B' is close to B , and A' and B' exactly commute. A not too informative but kind of cute way to phrase this question is: are almost commuting matrices nearly commuting?

The question has drawn interest from some mathematicians just because it is a natural question. Lately questions of this form has also drawn interest from physicists due to its application in the field of so-called topological insulators. I will attempt to justify the connection to physics without using scary physics words.

I will only assume basic knowledge a of linear algebra and little familiarity with continuity.