

Department of Mathematical Sciences welcomes

Ilya Kachkovskiy Michigan State University



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Hosted by:
American
Mathematical Society
Student Chapter of
IUPUI (Andrei
Prokhorov)

Tea begins at 3:00
in LD 259

Research Topic
begins at 3:30
in LD 229

Almost commuting matrices

ABSTRACT:

Suppose that X and Y are two self-adjoint matrices with the commutator $[X, Y]$ of small operator norm. One would expect that X and Y are close to a pair of commuting matrices. Can one provide a distance estimate which only depends on $\|[X, Y]\|$ and not on the dimension? This question was asked by Paul Halmos in 1976 and answered positively by Huaxin Lin in 1993 by indirect C^* -algebraic methods, which did not provide any explicit bounds. It was conjectured by Davidson and Szarek that the distance estimate would be of the form $C\|[X, Y]\|^{1/2}$. In the talk, I will explain some background on this and related problems, and the main ideas of the proof of this conjecture, obtained jointly with Yuri Safarov. If time permits, I will discuss some current work in progress.

ABOUT THE SPEAKER:

Ilya Kachkovskiy received his PhD in 2013 from King's College London under the supervision of Yuri Safarov and from St. Petersburg Department of Steklov Mathematical Institute under the supervision of Nikolay Filonov simultaneously. Now he is an assistant professor of mathematics at Michigan State University. His research interests include almost commuting operators and spectral theory of periodic and quasiperiodic Schrödinger operators.

