Emergent Research:

The PIMS Postdoctoral Fellow Seminar

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Pacific Institute for the Mathematical Sciences

From Groups to Quantum Groups and their Operator Algebras

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ABSTRACT:

Every group admits a unitary representation on a Hilbert space. In other words, every group can be realized concretely as symmetries on a Hilbert space. From these representations we can construct objects known as C*-algebras. This invites the use of tools from the theory of C*-algebras to the study of groups as well as provides interesting examples of C*-algebras for C*-algebraists. Celebrated developments of the past decade in the operator algebras community include group dynamical characterizations of the so-called unique trace property and C*-simplicity. Quantum groups for us are generalizations of groups in the sense that they are objects that "act quantumly on Hilbert spaces" and are defined via the associated C*-algebras. We will discuss all notions above (including defining a Hilbert space) as well as a recent development of the unique trace property for discrete quantum groups.

SPEAKER BIO:

Benjamin Anderson-Sackaney is a PIMS-Simons Postdoctoral fellow at the University of Saskatchewan under the sponsorship of Ebrahim Samei. Previously, he was a postdoc at the Université de Caen-Normandie under the supervision of Roland Vergnioux. He completed his PhD at the University of Waterloo under the supervision of Michael Brannan and Nico Spronk in 2022. His main research interests are on the interactions between objects that "act quantumly on Hilbert spaces" (quantum groups, rigid C*-tensor categories, etc), operator algebras, abstract harmonic analysis (e.g. generalized Fourier transform), and dynamics.

For more information and registration:
https://www.pims.math.ca/seminars/PIMSPDF

ABOUT PIMS PDF SEMINARS:

PIMS ongoing lecture series featuring our Postdoctoral Fellows every three weeks. You will have the opportunity to connect with emerging research in the mathematical sciences from a PIMS Postdoctoral Fellow. PIMS PDFs are amongst the top young researchers in Canada, and this is an excellent opportunity to learn about them, and their work.