HONOURS SEMINAR

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The Many "Hats" of a Hilbert Space

Supervised by Dr. Remus Floricel

Wednesday, November 22, 2023
2 p.m.
AH 318

Abstract

This talk will focus on Hilbert spaces, Fock spaces, and their properties and variations. In particular, symmetric and antisymmetric Fock spaces are briefly introduced to discuss systems involving particles. Other subspaces will also be discussed. The motivation behind researching such spaces is that each Hilbert space represents the state of a particular particle, and the full Fock space would represent the entire system of an arbitrary number of particles. The construction of this space is analogous to constructing the exponential through a power series. To elaborate, constructing a full Fock space is done by the infinite direct sum of several tensor products of Hilbert spaces, akin to the sum of products of scalars in the exponential. Lastly, q-Fock space will also be briefly mentioned.

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