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## Exactly solvable Quantum spin-1/2 models in 2D

Sunday 21 April 2024 12:40 (20 minutes)

Quantum spin-1/2 systems in two dimensions offer a rich and fascinating arena for theoretical and experimental exploration in condensed matter physics. In this presentation, we will delve into these quantum systems in 2D. Starting with the Kitaev model, we will discuss one of the analytical approaches to solving such models, using the Jordan-Wigner transformation and Bogoliubov rotations. Additionally, we will explore several other exactly solvable models, such as the Ising model (Onsager's solution), free fermion models, and certain limits of the Hubbard model. Through these examples, we will emphasize the crucial symmetries and integrability properties that facilitate exact solvability.

## Field

Physics and Astronomy

## Length

Short 15 min

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