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An index theory for many body quantum systems

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Indices are the main tool to classify topology of gapped quantum systems; Two systems with a different value of an index cannot be connected by a continuous transformation. The quantum Hall conductance is the canonical example. For non-interacting systems this conductance can be mathematically expressed as an index of two projections. In this talk, we give a generalisation of this theory to systems with interactions.

This is a join work with S. Bachmann, A. Bols and W. de Roeck.

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