

The fractional quantum Hall state at $\nu=5/2$: Recent insights from theory and experiment

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Non-Abelian phases of matter have long inspired quantum physicists across various disciplines. The strongest experimental evidence of such a phase arises in quantum Hall systems at the filling factor $5/2$ but conflicts with decades of numerical work. I will briefly introduce the $5/2$ plateau and explain some of the key obstacles to identifying its topological order. I will then describe recent experimental and theoretical progress, including a proposal for resolving the $5/2$ enigma based on electrical conductance measurements.