

Competing Fractional Quantum Hall and Nematic Order in the Two-dimensional Electron Gas

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Phases of matter are broadly classified into two distinct classes: broken symmetry phases and topological phases. Phase transitions within the first class of phases involve a change in symmetry, whereas those between topological phases require a change in topological order. However, in rare cases transitions may occur between the two classes in which the vanishing of the topological order is accompanied by the emergence of a broken symmetry. In this talk I will discuss such a transition recently discovered in the two-dimensional electron gas. When tuned by hydrostatic pressure, the $\nu = 5/2$ fractional quantum Hall state, believed to be a prototypical non-Abelian topological phase, gives way to an electronic nematic phase.