

Topological defects and anyon teleportation

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I will briefly motivate and explain the contemporary mathematical formalism for quantum field theory, and the corresponding formalism for defects (aka phase transitions, domain walls, solitons, monopoles, etc) between field theories. I'll discuss the classification of these field theories and defects in dimension 3, in terms of fusion categories and braided fusion categories of quasiparticle anyons. Finally, I'll describe how a quantum teleportation algorithm may be implemented within an ambient fusion category, giving a procedure for teleporting anyons. This covers joint work with C. Schommer-Pries and N. Snyder, and with B. Bartlett and J. Vicary.