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Title: Non-Abelian anyons and the fractional quantum Hall effect at filling $5/2$

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The fractional quantum Hall effect (FQHE) continues to fascinate 30 years after its discovery. In particular, the FQHE at filling factor $5/2$ (the $1/2$ filled second Landau level) might support the existence of a topological phase of matter, the so-called Moore-Read Pfaffian state, with non-Abelian anyonic excitations. These non-Abelian anyonic excitations have potential applications for topologically-protected quantum information processing. In this talk I will discuss recent numerical work that addresses the reality of the Moore-Read Pfaffian description of the FQHE at $5/2$. I thank DARPA QuEST and Microsoft Station Q and this work was done in collaboration with John Biddle, Chetan Nayak, and Sankar Das Sarma.