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Theoretical Investigation of Edge Reconstruction in $\nu = 5/2$ and 7/3 Fractional Quantum Hall States YUHE ZHANG, YINGHAI WU, JIMMY HUTASOIT, JAINENDRA K. JAIN, Department of Physics, The Pennsylvania State University, University Park, PA, 16802 — We study the possibility of edge reconstruction for the $\nu = 5/2$ fractional quantum Hall (FQH) state in a realistic geometry which includes the background positive charge at a distance d and the lower filled Landau level. For this purpose, we diagonalize the second Landau level Coulomb interaction within the Pfaffian basis of edge excitations, and find the range of setback distance d where edge reconstruction occurs. We also study the edge of the $\nu = 7/3$ FQH system with composite fermion diagonalization method and find the edge reconstruction occurs more easily at $\nu = 7/3$ than at $\nu = 1/3$. We also ask how edge reconstruction affects the exponent associated with tunneling into the edge.

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