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**Study of Quasiholes in FQHE for different Landau Levels<sup>1</sup>** R.N. BHATT, SONIKA JOHRI, Department of Electrical Engineering, Princeton University, ZLATKO PAPIC, Perimeter Institute for Theoretical Physics, PETER SCHMITTECKERT, Karlsruhe Institute of Technology — We study the sizes of elementary quasiholes in  $\nu = 1/3$  and  $\nu = 7/3$  quantum Hall states. Calculations are carried out by exact diagonalization and density matrix renormalization group method for spherical and cylindrical geometries. We use both short- and long-range pinning potentials to localize the quasihole [Johri et. al arXiv:1310.2263]. The size of the quasihole in the model Laughlin state is estimated to be around  $\approx 2.5\ell_B$ , where  $\ell_B$  is the magnetic length. In contrast, the size of the quasihole in the Coulomb ground state at filling factor  $\nu = 1/3$  is  $\approx 4\ell_B$ , while that at  $\nu = 7/3$  is  $\approx 7\ell_B$ . Our results support the earlier findings by Balram et. al [PRL **110**, 186801 (2013)] that the  $e/3$  quasihole in the first excited Landau level is significantly larger than in the lowest Landau level.

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