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Entanglement Entropy as a Function of the Aspect Ratio in the First and Second Landau Level BARRY FRIEDMAN, CURTIS BALUSEK, DARWIN LUNA, Physics Department, Sam Houston State University — Entanglement entropy as a function of aspect ratio has been studied by direct diagonalization in the first and second Landau levels. The torus geometry is used and spin polarized electrons interact via long range Coulomb interaction . As previously noted by Haque et al. (N J Phys 12, 2010 075004), in the first Landau level there is very smooth behavior as a function of aspect ratio making it possible to obtain the topological entanglement entropy. In the second Landau level, the entanglement entropy is much less regular, with possible signatures of quantum phase transitions.

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