FINITE SIZE SCALING ANALYSIS OF THE CHALKER-CODDINGTON MODEL

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While the quantum Hall transition has been studied extensively both experimentally and theoretically for many years, we still do not have a quantitative understanding of the critical behavior at the transition. Recently, we pointed out that the critical exponent for the divergence of the localization length had been significantly underestimated[1]. The previous consensus was that the exponent is approximately 2.37 [2, 3] while we found 2.59 ± 0.01. Our revised estimate has now been confirmed in several independent numerical analyses[4-8] The significance of this is that it means that there is now a clear disagreement with the measured value 2.38[9]. Here, we will update our finite size scaling analysis of the Chalker-Coddington model[10]. We will also suggest the origin of the previous underestimate by other authors.

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