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Integer Quantum Hall Effect versus Anderson Transition: Numerical Comparison for Eigensolutions Statistics I. KH. ZHAREKESHEV, Regionales Rechenzentrum, Universität Erlangen-Nurnberg, Martenstr. 1, 91058 Eralnegn, Germany — Two types of the disorder-induced localization transitions, the plateau-to-plateaux transition in the Integer Quantum Hall Effect and the conventional Anderson transition in 3 dimensions are considered by using a comparative analysis. Similarities and differences of critical behavior of the eigenfunctions and eigenvalues statistics for both cases are numerically investigated within the frames of the common self-contained diagonalization technique. Both transitions reveal a number of the same universal features at criticality, including the one-parameter scaling, symmetry dependence of the eigenfucntions distributions, multifractality spectra, non-trivial branching numbers etc. Our results provide a strong support for the quantum-field theoretical description treating the two transitions as a generalized transition, i.e. a unique critical phenomenon.

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