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Quasiparticle tunneling amplitude in fractional quantum Hall states¹ ZIXIANG HU, Princeton university, KIHOOON LEE, APCTP, Korea, EDWARD H. REZAYI, California State Univ, Los Angeles, XIN WAN, APCTP, Korea & ZheJiang University, China, KUN YANG, NHMFL & Florida State University — We study qp tunneling in the MR state, in which qp of charge $e/4$ and $e/2$ may co-exist and both contribute to edge transport. The tunneling amplitude for charge $e/2$ qp is exponentially smaller than that for $e/4$ qh, and the ratio between them can be (partially) attributed to their charge difference. The tunneling amplitude shows some scaling behavior which originates from the propagation and tunneling of charged qhs in an effective field analysis. In the ring limit, we conjecture the exact functional form for several cases. The results for Abelian qp tunneling is consistent with the scaling analysis; this allows for the extraction of conformal dimensions of the qps. We analyze the scaling behavior of both Abelian and non-Abelian qps in the Z_k parafermion states. Interestingly, the non-Abelian qp tunneling amplitudes exhibit nontrivial k -dependent corrections to the scaling exponent.

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