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**Transient Features in Charge Fractionalization and Non-equilibrium Bosonization**[1] BERND ROSENOW, ALEXANDER SCHNEIDER, University of Leipzig, MIRCO MILLETARI, NUS Centre for Advanced 2D Materials and Graphene Centre — In quantum Hall edge states and in other one-dimensional interacting systems, charge fractionalization can occur due to the fact that an injected charge pulse decomposes into eigenmodes propagating at different velocities. If the original charge pulse has some spatial width due to injection with a given source-drain voltage, a finite time is needed until the separation between the fractionalized pulses is larger than their width. In the formalism of non-equilibrium bosonization, the above physics is reflected in the separation of initially overlapping square pulses in the effective scattering phase. When expressing the single particle Green function as a functional determinant of counting operators containing the scattering phase, the time evolution of charge fractionalization is mathematically described by functional determinants with overlapping pulses. We develop a framework for the evaluation of such determinants, and compare our theoretical results with recent experimental findings.

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