

## Mathematical Physics

# Universal Luttinger Liquid Relations in the 1D Hubbard Model

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We study the 1D extended Hubbard model with a weak repulsive short-range interaction in the non-half-filled band case, using non-perturbative Renormalization Group methods and Ward Identities. At the critical temperature,  $T = 0$ , the response functions have anomalous power-law decay with multiplicative logarithmic corrections. The critical exponents, the susceptibility and the Drude weight verify the universal Luttinger liquid relations. Borel summability and (a weak form of) Spin-Charge separation is established.

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