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Relaxation of the electron wave packet in the quantum Hall edge ¹ ARTUR SLOBODENIUK, EDVIN IDRISOV, EUGENE SUKHORUKOV, Univ of Geneva — Recently, single-electron wave packets in the quantum Hall edge (QHE) become very important objects in the so-called electron optics. The properties of these excitations are well known only in the case of free-fermion description of the QHE. The role of the Coulomb interaction in such systems have not received a clear theoretical description yet. We propose the method of calculation of characteristics of single-electron excitations of the QHE which takes into account this interaction. We realise it on the QHE with filling factor $\nu=2$. The difference of the obtained quantum state with the free-fermion answer is investigated. It is shown that role of the Coulomb interaction is crucial and it's effects can be measured in the Hong-Ou-Mandel and Hanburry-Brown-Twiss experiments. As an example, the influence of Coulomb interaction for the case of electronic Mach-Zehnder interferometer is calculated.

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