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Dynamic response functions, helical gaps, and fractional charges in quantum wires[1] TOBIAS MENG, Institut fuer Theoretische Physik, Technische Universitaet Dresden, 01062 Dresden, Germany, CHRISTOPHER J. PEDDER, Physics and Materials Science Research Unit, University of Luxembourg, L-1511 Luxembourg, RAKESH P. TIWARI, Department of Physics, University of Basel, Klingelbergstrasse 82, CH-4056 Basel, Switzerland, THOMAS L. SCHMIDT, Physics and Materials Science Research Unit, University of Luxembourg, L-1511 Luxembourg — We show how experimentally accessible dynamic response functions can discriminate between helical gaps due to magnetic field, and helical gaps driven by electron-electron interactions ("umklapp gaps). The latter are interesting since they feature gapped quasiparticles of fractional charge $e/2$, and - when coupled to a standard superconductor - an 8π-Josephson effect and topological zero energy states bound to interfaces.

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