## Universality of heat and entropy transport in 1D channels at arbitrary temperatures

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I show that there is a close analogy between the quantities that describe one-dimensional (1D) quantum transport and the thermodynamic quantities of 2D quantum gases at equilibrium; for example the particle, energy, heat and entropy fluxes are analogous to the particle number, internal energy, heat capacity and entropy, respectively. Based on this, I write analytic expression for the transport quantities and I show that the heat conductivity and entropy current are independent of statistics at any temperature. The quanta of heat conductance is therefore the low temperature limit of the heat conductance of one channel and is the same, as expected from the analogy above, as the low temperature limit of heat capacity. The physical interpretation of this remarkable universality of 1D transport is interpreted microscopically in terms of configurations of particle populations which carry the same heat fluxes.

[1] D. V. Anghel, *Universal heat conductance of one-dimensional channels*, arXiv:1012.1085