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Chiral heat transport in driven quantum Hall and spin Hall edge states LILIANA ARRACHEA, Universidad de Buenos Aires, EDUARDO FRADKIN, University of Illinois at Urbana-Champaign — We consider a model for an edge state of electronic systems in the quantum Hall regime with filling $\nu = 1$ as well as in the quantum spin Hall regime. In both cases the system is in contact with two reservoirs by tunneling at point contacts. Both systems are locally driven by applying an ac voltage in one of the contacts. By weakly coupling them to a third reservoir, the transport of the generated heat is studied in two different ways: i) when the third reservoir acts as a thermometer the local temperature is sensed, and ii) when the third reservoir acts as a voltage probe the time-dependent local voltage is sensed. Our results indicate a chiral propagation of the heat along the edge in the quantum Hall case and in the quantum spin Hall case (if the injected electrons are spin polarized). The temperature profile shows that electrons along the edge thermalize with the closest upstream reservoir.

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