# Radiation squeezing in interacting quantum Hall edge channels

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**Abstract**

Experimental investigations of current fluctuations at finite frequency generated by a periodic drive applied to a mesoscopic device have underlined a deep connection between this quantity and the fluctuations of the microwave radiation emitted by the device itself. In this talk, I will discuss the effects of inter-edge interactions on the quantum properties of the emitted radiation by a quantum Hall conductor with integer filling factor. We propose to study the sample in quantum point contact geometry. We will show the connection between the emitted radiation's quadratures and the current fluctuations which are accessible through a two-filters set up. We finally compare two different periodic drives, respectively a cosine and a train of Lorentzian pulses, used for the injection of the excitations into the system. In both cases quantum features are reduced due to the interactions. Despite this, the Lorentzian one still leads to relevant squeezing even in presence of interaction and this is a signature of a better robustness of this drive with respect to the cosine one. In the light of recent theoretical and experimental results this work can be extended for a more detailed study of electromagnetic radiation squeezing.

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