Abstract: In the past decade, the measurement of the spectral density of current fluctuations - noise - has become an accepted diagnosis of quantum transport in nanocircuits. I first review situations where noise cross correlations at zero frequencies can provide useful information about the transport properties of a nanocircuit.

An example is the signature of quasiparticle charges in the fractional quantum Hall effect, an other one is the signature of effective charges in the carbon nanotubes, both of which are the result of the collective excitations in this correlated electron system. Noise is also useful for performing a test of entanglement (quantum mechanical non-locality) in nanocircuitry.

Sometimes however, finite frequency noise cross correlations are desperately needed for these diagnoses. I then examine several experimental and theoretical situations where the noise source is coupled to a measuring device, with either capacitive coupling or with inductive coupling, allowing a "direct" measurement of noise.