**Nonequilibrium Properties**

**‘Conductivity’**

Like electrons, photons also exhibit localization, and we can test this by examining how their transmission coefficients change with length. If we put a bunch of, say, random dielectrics within the waveguide, which essentially act as impurities, then we’d expect:



Just like with electrons. But with photons we have to be careful that we exclude absorption, because that could also lead to an exponential decay rate. Apparently one difference between the two would be the exceptionally long tail produced by phase-coherence in the legitimate localization case as opposed to the small tail/perhaps Gaussian, that we get with just absorption.