

Astronomy 4100, Homework # 21, 30 March 2015 (due 8 April 2015).

1. Estimate the NEP_T for a 1x1 mm silicon bolometer operating at 10 K with a 100 μm thin silver thermal link to a heat sink. Assume the QE is near unity.
2. For the previous bolometer observing at $\lambda = 2$ mm estimate the photon flux (photons per square meter per second) that can be observed with S/N better than 2. Assume that the only contributions to the noise are NEP_T and NEP_{ph} and that these add in quadrature.