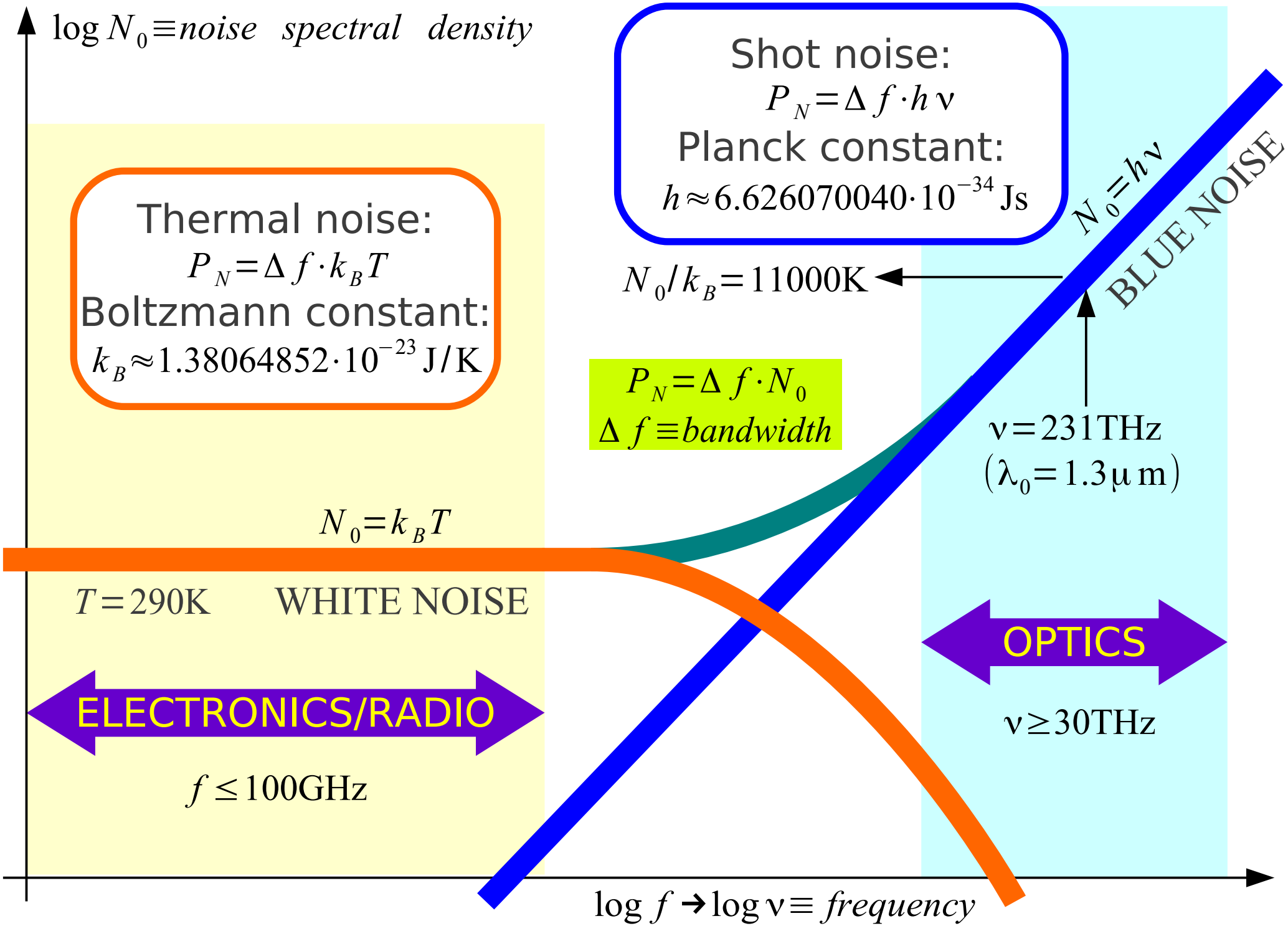
$\log N_0 \equiv noise\ \ spectral\ \ density$
Shot noise:
$P_N = \Delta f \cdot h\nu$
Planck constant:
$h \approx 6.626070040 \cdot 10^{-34}$ Js
Thermal noise:
$P_N = \Delta f \cdot k_B T$
Boltzmann constant:
$k_B \approx 1.38064852 \cdot 10^{-23}$ J/K
$N_0 = h\nu$
BLUE NOISE
$N_0 / k_B = 11000$K
$P_N = \Delta f \cdot N_0$
$\Delta f \equiv bandwidth$
$\nu = 231$THz
$(\lambda_0 = 1.3\mu$m$)$
$N_0 = k_B T$
$T = 290$K
WHITE NOISE
OPTICS
ELECTRONICS/RADIO
$\nu \geq 30$THz
$f \leq 100$GHz
$\log f \rightarrow \log \nu \equiv frequency$