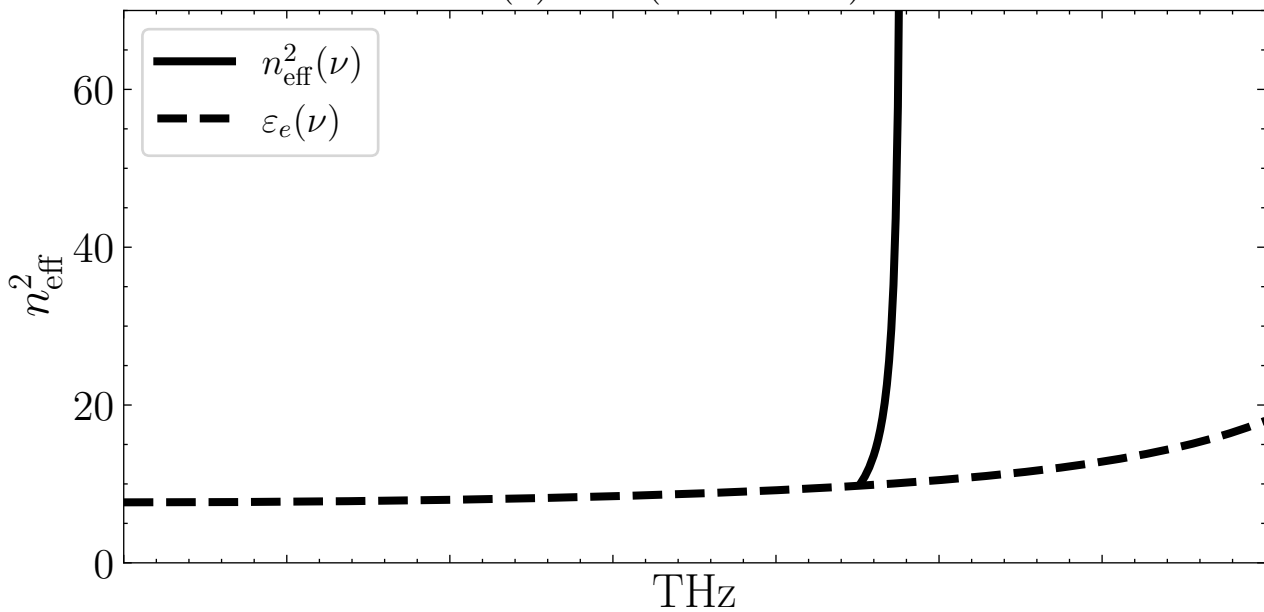(a) $\kappa = (2 \times 10 + 1)\alpha$

(b) $\kappa = (2 \times 100 + 1)\alpha$