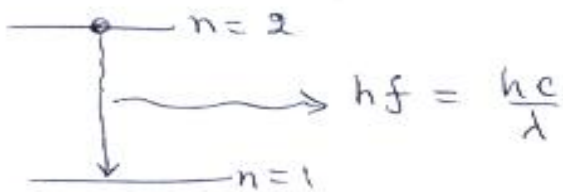


The energy separation between every two minima in Fig. 3.27 is equal to the energy separation ΔE . It is found that this energy separation ^{between minima is} is 4.9 eV. This corresponds to the energy separation between $n=1$ and $n=2$ levels for Hg atom.

$$\text{So } \Delta E = hf = \frac{hc}{\lambda} \Rightarrow \lambda_{\text{cal}} = \frac{12400}{4.9} = 2530 \text{ \AA (UV)}$$

Frank and Hertz measured the wavelength of radiation when Hg atom return to the ground state



They found a wavelength of 2540 Å very close to the theoretical value of 2530 Å.