Answer on Question #76933 - Chemistry - Physical Chemistry

Question:

If a certain metal was irradiated by using two different light radiations of frequency x and 2x the kinetic energies of the ejected electrons are y and 3y respectively the threshold frequency of the metal will be

Solution:

$E_k = h_\mu - h_{\mu 0}$;

$h_x - h_{\mu 0} = y$;

$h_{2x} - h_\mu = 3y$;

$h_{\mu 0}$ will be same as it is work function and it is a property of a metal;

$h_{(x - \mu 0)} h_{(2x - \mu)} = y3y$;

$3x - 3\mu_0 = 2x - \mu_0$;

$x = 2\mu_0$;

$\mu_0 = x/2$.

Answer: $x/2$

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