Photons hit stationary electron in Newtonian mechanics.

The collision is elastic.

Momentum of photon is \( \frac{khv}{c} \), \( \frac{khv}{c} \)

\[ \frac{1}{2}mv^2 + hv = \frac{1}{2}mv'^2 + hv' \]

Let \( v = 0 \):

\[ k(v - v') = \frac{1}{2}mv'^2 \]

\[ mv + \frac{k hv}{c} = mv' - \frac{k hv'}{c} \]

With \( v = 0 \),

\[ mv' = \frac{k h}{c} (v + v') \]

\[ \text{Q2: } \frac{2m h (v - v')}{c} = (mv')^2 \]

Use \( m \Theta \):

\[ m \Theta (v - v') = \frac{[k h (v + v')]^2}{c} \]

\[ 4 = 2mc^2 \frac{(v - v')}{k h} = (v + v') \]

Then let \( u = \frac{v'}{v} \):

\[ (1 + u)^2 = \frac{2mc^2}{kh} (1 - u) \]

\[ u^2 + \left( 2 + \frac{2mc^2}{kh} \right) u + \left( 1 - \frac{2mc^2}{kh} \right) = 0 \]

\[ u = -\frac{mc^2}{kh} \pm \frac{\sqrt{4mc^2 + (mc^2)^2}}{2mc^2} \]

\[ t = -\frac{mc^2}{kh} \pm \left( mc^2 - 1 \right) \]
The photon hits electron
\[ \gamma - \frac{mc^2}{k\gamma v} \pm \frac{(mc^2)}{k\gamma v} \left[ 1 + \frac{2(k\gamma v)}{mc^2} - 4\frac{k\gamma v}{mc^2} \right] \approx 1 \]
\[ \approx 1 - \frac{4(k\gamma v)}{mc^2} \approx 1 \]

or \( \gamma \leq 0 \), which is inadmissible.

So \( \gamma - \frac{v}{c} = \gamma (1 - \frac{v}{c}) = \gamma (1 - \nu) \)

\[ = + \frac{4k\gamma v^2}{mc^2} \]

This is not what Franck has for \( \gamma - \frac{v}{c} \).

For reflection out at right angles, has experiment shown a difference?