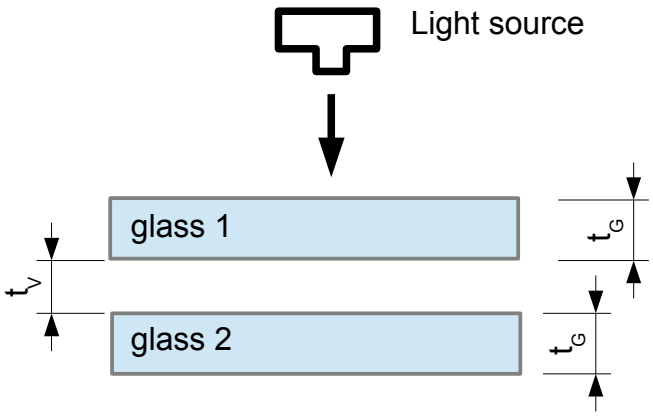
Assignment QED – I

Due Mar 28th @ 1 pm

A monochromatic light source generates photons with the wavelength of λ . The photons are sent perpendicular to the surface of two glass plates arranged as shown on the figure. Both plates have the same thickness t_G . The plates are spaced by a vacuum layer of the thickness t_V . The reflection probability at the glass/vacuum interface equals 0.04



- Determine conditions that provide maximum reflection from this structure.
- How much the maximum amount of light reflected by 2 layers of glass differ from that for a single layer?
- How sensitive is the reflection (or transmission) to the variation of the glass thickness? (for this assume $\Delta t_G = \pm 0.1\lambda$)
- Assume that the structure is set up in a way to maximize the reflection of light with $\lambda = 530$ nm. How will the structure appear to an external observer when exposed to a daylight?