Advanced Topics on Spectroscopy 2020 report 4

A file “2020 transmittance and reflectance.txt” shows transmittance and reflectance spectra of some direct gap semiconductor thin film.

First, 2nd and 3rd columns show wavelength (nm), transmittance T(%), reflectance R(%), respectively.

From the data, draw $(\alpha h\nu)^2$ plot and estimate band gap energy of the semiconductor.

Drawing ranges of horizontal and vertical axes are 0.5~2.0 eV and $0 \sim 2 \times 10^9$ $(\mathrm{eVcm^{-1}})^2$.

Band gap energy must be estimated from the value of $5 \times 10^8 \sim 2 \times 10^9$ $(\mathrm{eVcm^{-1}})^2$ with 3 significant figures. Show an equation of linear approximation for estimation of the band gap energy.

Film thickness is 1000 nm.

Deadline 2020/6/19 15:00(JST)

Submitting place: mail box at room 406 of the electrical engineering building.

Write your e-mail address which can receive from tanaka@vos.nagaokaut.ac.jp.

If your score is less than 60, I will inform you. If your written address rejected my mail, I will not inform you.

If you resubmit report, your final score of this report is 80% of resubmit report, however, if the final score is higher than 60, your final score of this report is 60. You can resubmit only one time.