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This program was written by Alex Berenzon

As an undergraduate project

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We hope this program will be useful to YOU

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This program uses:

One input file by the name of LAYERS.DAT

It's format is:

1.55 - The wave length in μm
3.30 0.01 1.50 c - $\text{Re}\{n\}$ $\text{Im}\{n\}$ Width[μm] Kind{c,s,q} : Of each layer
3.40 -0.01 0.10 s - ...
3.60 -0.01 0.08 q - ...
 maximum 100 layers...

One configuration file by the name layers.cfg and with the next format:

0.0001 - Real final resolution of n_{eff}
0.0001 - Imgn. final resolution of n_{eff}
200 - Number of points in output intensity plot (MAX is 500)
5 - Resolution factor of the first iteration of Real_axis (odd and ≤ 7)

two output files: INTNCTY.OUT CONFNMNT.OUT

This program works as follows:

- 1) The solution for TE mode is looked for in a surface defined by $[\max(\text{Re}(n)).. \min(\text{Re}(n))]X[\max(\text{Im}(n)).. \max(\text{Im}(n))]$.
- 2) The method is based on the transmission transfer matrix and a solution is a peak in transmission.
If there is more than one mode you'll get a few peaks.
A true peak (solution) intensity increases with resolution.
- 3) After each iteration a 3D plot is shown with the lowest order mode marked. If you wish to solve for a different mode please use the arrows keys.
- 4) Once a mode is selected you can either press SPACE to continue or ESC to abort.
- 5) After the final resolution has been reached the mode profile is calculated and written into intencity.out
The file is made of $[x, \text{intencity}, \text{Re}(n), \text{Im}(n)]$.
- 6) The effective index plus confinement factors are written into confinement.out

