Running NLTE2D with gfortran compiler on Linux system

- Download the package source file NLTE2D.tgz from MEDOC website : https://idoc.ias.universite-paris-saclay.fr/MEDOC/Radiative transfer codes/NLTE2D

- (**gfortran** compiler is required)

- Unpack the package by typing the following linux command :
  tar -xvzf NLTE2D.tgz

- Go to the folder NLTE2D :
  cd NLTE2D

- Make the following pearl scripts compil.pl and launch.pl executable :
  chmod +x compil.pl launch.pl

- The folder contains the following files: compil.pl, launch.pl, nlte2d.f90 (main program), rt2dgsm.simple.f90, nmgm2d.f90, rf2d.f90, rt2d.f90, hdata.f90, aems.f90, ratio.f90, seta.f90, dopwidth.f90, eincoef.f90, boltzex.f90, saha.f90, xgrids.f90, cubquad.f90, init_voigt.f90, voigt.f90, radbf.f90, planckf.f90, sigmapi.f90, gaunt.f90, colex.f90, h1bb.f90, colion.f90, h1bf.f90, setgeo.f90, lycont.f90, abshyd.f90, abssil.f90, abscar.f90, absmag.f90, absalu.f90, absfer.f90, avray.f90, avhm.f90, avh2p.f90, calabs.f90, gsmeqstat.f90, matray.f90, testmonotonie.f90, ludcmp.f90, lubksb.f90, formal.f90, prolong2d.f90, restrict2d.f90, atomicmodel.f90, transitions.f90, quadrature.f90, constantes.f90, common.f90, grille2d.input, probaa.dat, probab.dat, probag.dat, probra.dat, prolya.dat, prolyb.dat, input (input parameter file), graphe.py (python file to visualize spatial distribution of level 3 of H), LyCont2D.py (python file to visualize spatial distribution of Lyman continuum)

- The file to modify is “input” : it contains input parameters. It is not necessary to enter them by hand when executing the NLTE2D code

- Run the code by typing :
  ./compil.pl (2 times if the first time the following message is displayed « Fatal error : Cannot open module file ‘xxx.mod ‘ »)
  ./launch.pl

- The executable of the code is nlte2d

- The output files of the main program nlte2d.f90 are : grille2d.res, disque.res, opacites.res, halpha.res, intensite.res, populations.res, toto.res, profils.res, limbe.res

- The output file of seta.90 is : quadrature.res

- The folder **results** contains the output files corresponding to a test case (corresponding to parameters from « input » file) to be able to check if your results are good

- To visualize electron density (populations.res file), we use graphe.py file by typing the following command :
  python graphe.py

- To visualize emergent Lyman continuum intensity (intensite.res), we use LyCont2D.py file by typing the following command :
  python LyCont2D.py

- Before running NLTE2D again, type : **rm nlte2d *.o *.mod**

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