Computational light scattering (PAP315)

Lecture 11b

Antti Penttilä

Department of Physics, University of Helsinki, Finland

- Linux/Mac/Windows+MSYS2 with GCC gfortran compiler
- GNU make tool

- Go to https://bitbucket.org/planetarysystemresearch/rtcb_public/

- Get package by downloading the zip from the page
  - wget https://bitbucket.org/planetarysystemresearch/rtcb_public/get/fb83affbb3ef.zip
  - unzip 505cd74e7a3f.zip
  - mv planetarysystemresearch-rtcb_public-505cd74e7a3f/ rt-cb

- Or with Git: (preferred, wget-download above points to a specific version of the code, not to the latest version)
  - git clone https://bitbucket.org/planetarysystemresearch/rtcb_public.git

- Go to package root and compile with make:
  - make rtcbSphere
  - make rtcbPlane
  - (you might need to manually create two folders first: 'mkdir obj' and 'mkdir mod')

- All parameters are given in input file, and the input file name will be given as option in the command line.

- First option to RT-CB needs to be the number of cores to be used (for OpenMP parallel execution"
  - ./rtcbPlane 2 input.inp

- See doc.pdf for list of command-line parameters

Example parameters for semi-infinite plane slab with Rayleigh-scatterers:

```
wavelength=0.55
single_scattering_albedo=0.99
mean_free_path=20.0
medium_thickness_or_radius=100.0
number_of_rays=200
theta_angle_of_incidence=180.0
scatterer_type=rayleigh
details_output=rayleigh_plane_details.out
rt_solution=rayleigh_plane_rt.out
cb_solution=rayleigh_plane_cb.out
```