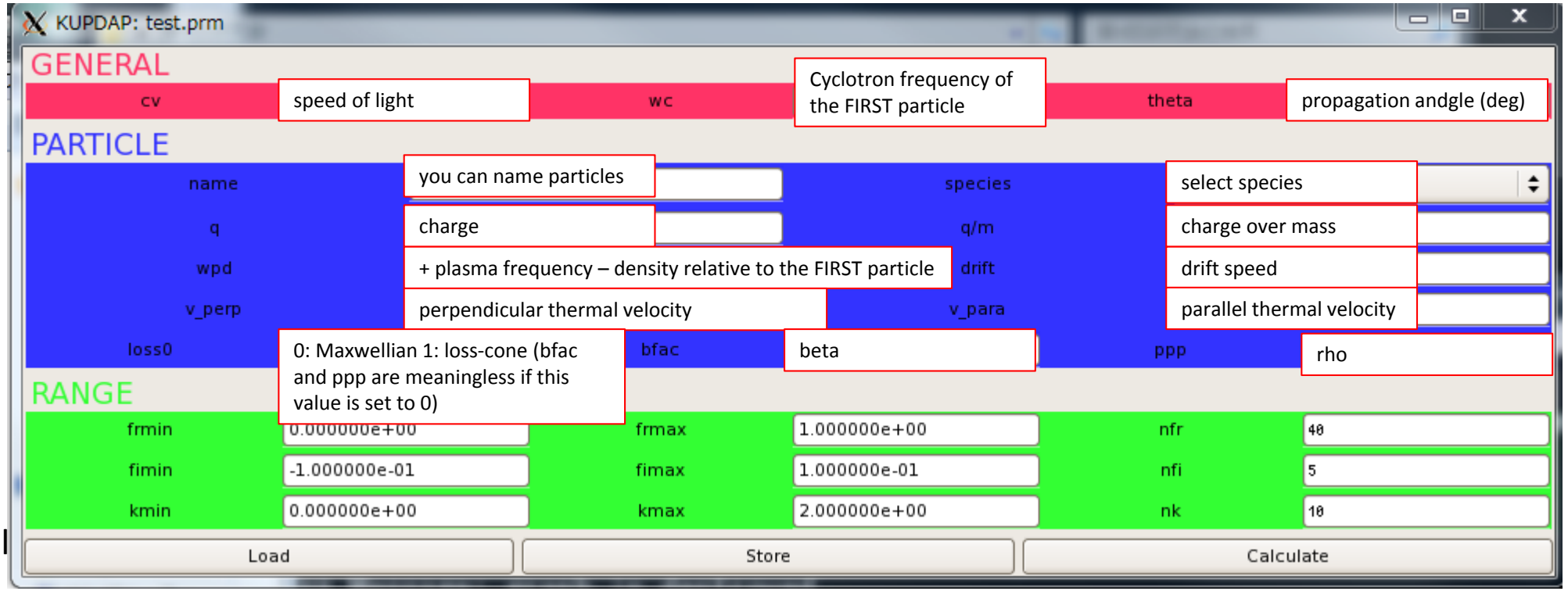
How to Start KUPDAP

- Click kupdap.exe
- You don’t have to install it.
- I’ve tried Windows machines. KUPDAP works well on most machines but it is hang on some machines.

Load and Save parameters.

- You can load a parameter file by clicking the “LOAD” button and choosing the file.
- Note if the path contains Japanese, KUPDAP may fail in loading parameters.
- You can save parameters by clicking “STORE” button.

Parameters



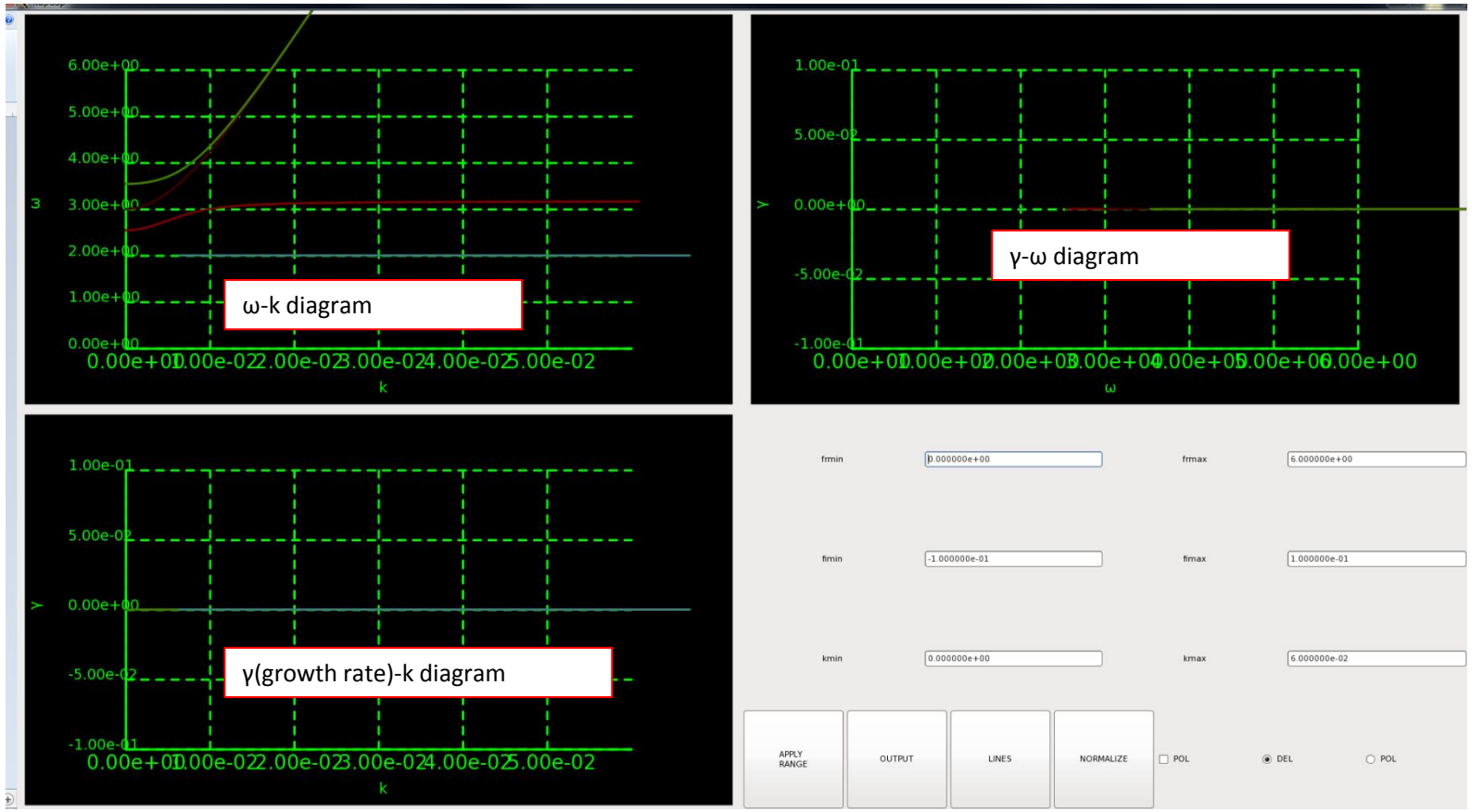
Range of calculation and the number initial solutions

Example of converting parameters

We have cold electron, cold proton and hot proton. Given parameters are
Bo = 140nT
$n(Hc^+) = 10\ cm^{-3}$
$n(Hh^+)/n(Hc^+) = 0.05$
$(kT_{||}/2)c = 1.5$ eV
$(kT_{||}/2)h = 15$ keV
$(T_\perp/T_{||})h = 2$
parallel propagation.

We set hot proton as the FIRST particle.
and cv = 300, wc = 1, theta = 0.
For the first particle, we set q = 1 and q/m = 1.
Proton gyro frequency is 2.1 Hz and plasma frequency is 664. Thus wpd = fpH/fgH*wc = 316
Proton thermal velocity is 311000 m/s thus
$v\_perp(Hc^+) = v\_para(Hc^+) =$
311000/300000000*cv = 0.311
For the hot proton, q = 1 and q/m = 1.
wpd is determined by the relative density Thus wpd = -0.05.
For electrons, q = -1 and q/m = -1836.
wpd = -1.05.

Result



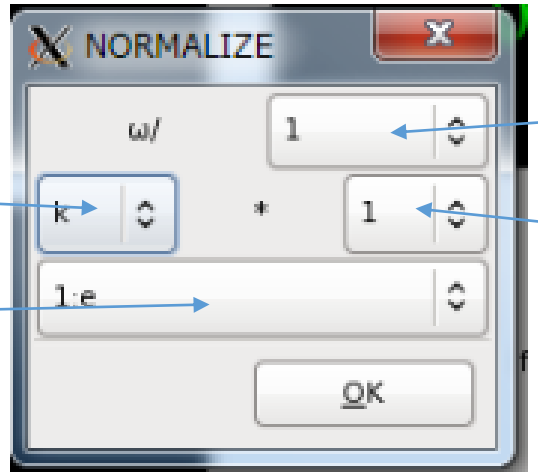
If you want to change the range, edit these values and push “APPLY RANGE”

Hiding lines

- By clicking around a line, you can hiding the line.
- If you push “LINES”, a small window appears. It shows you which line is displayed or not. By toggling the check box, you can show and hide the line

Normalization

By clicking “NORMALIZE”, a window below appears.



k or k|| or $k_{\perp}$

choose species

normalization of ω and γ by plasma frequency or gyrofrequency

normalization of k by gyro-radius

OUTPUT

- By clicking “OUTPUT”, you can determine the file name for output.
- The order of data is k, ω and γ
- If the data contains several lines, they are delimited by an empty line.