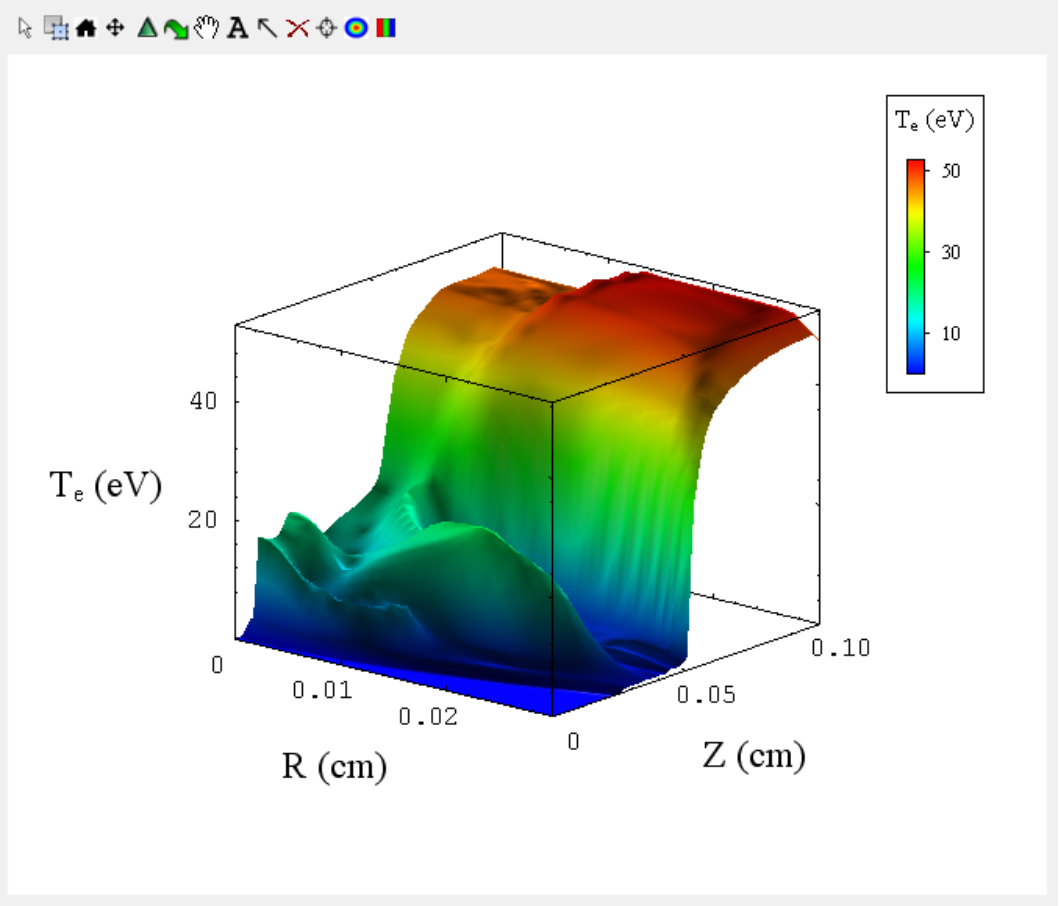
Revision History

Version 16.0.0

SPECT3D:

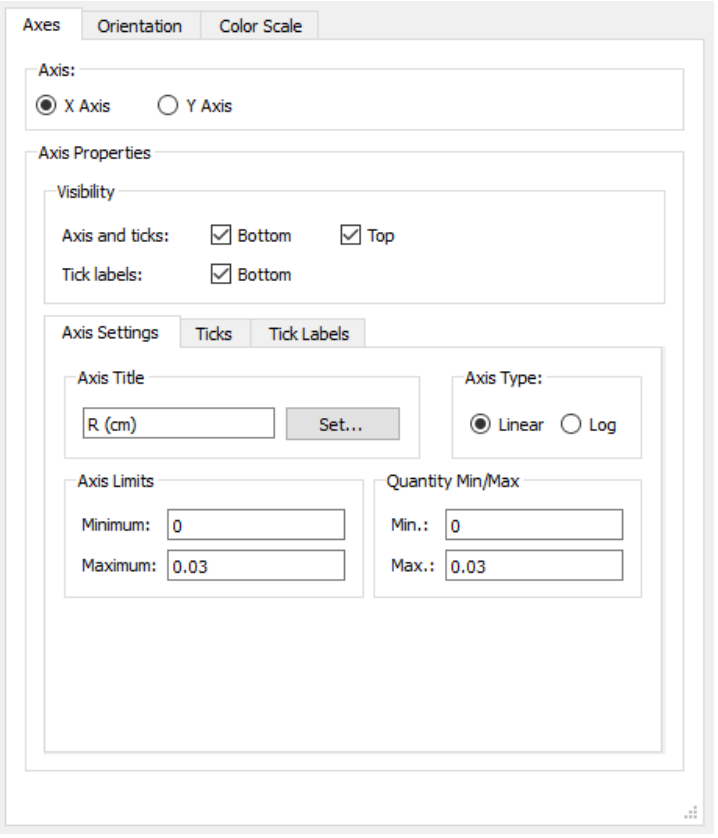
- Opacity tables which include hot electrons can now be used. This greatly improves the speed (50-100x in cases tested) of hot-electron-induced cold k-alpha/k-beta spectra. Table lookup uses a new parameterization method for the hot electron distribution in each plasma cell. The three lookup parameters are (a) total hot electron density, (b) mean hot electron energy, and (c) sigma / mean, where sigma is the square root of the variance. These tables will be produced by the next release of *PROPACEOS*, which creates hot electron distributions with Gaussian profiles. This means that the trade-off in accuracy comes from (a) the typical table interpolation, and (b) replacing PIC code hot electron energy distributions with Gaussian profiles of the same integral, mean, and variance. The effect on the final spectrum has been studied extensively. Overall, the spectral shape is nearly identical even in the case of widely varying plasma temperatures (which results in a complex total spectrum), and we have spectral amplitude agreement within about 15%.
- 2D contour plots can now be viewed as 3D isosurfaces.



- Bug fixes:
  - Atomic model is no longer reset if user visits Materials tab in user interface (bug introduced in v. 15.5.0)

VISUALIZER:

- 2D contour plots can now be viewed as 3D isosurfaces.
- A 3D toolbar has been added to allow for 3D isosurface plot manipulations.
- The axis properties dialogue has been updated and simplified for 2D and 3D plots.



- The structure of the graphics layer controller has been updated to edited layer specific items and plot specific items separately.
- Bug fixes:
  - Drilldown will no longer crash when X-Ray scattering is turned on.

SpectraPLOT:

- When clicking on a spectral plot widget while the *Show Coordinates* toolbutton is selected, and while the *Transitions Table* is shown, the table now highlights the closest transition to the selected photon energy.
- 2D contour plots can now be viewed as 3D isosurfaces.
- A 3D toolbar has been added to allow for 3D isosurface plot manipulations.
- The axis properties dialogue has been updated and simplified for 2D and 3D plots.
- The structure of the graphics layer controller has been updated to edited layer specific items and plot specific items separately.
- Bug fixes:
  - When *EXODUS* file is not found during Drilldown, user is prompted to browse for the file.
  - Drilldown will no longer crash when X-Ray scattering is turned on.
  - Drilldown will no longer crash on Linux.