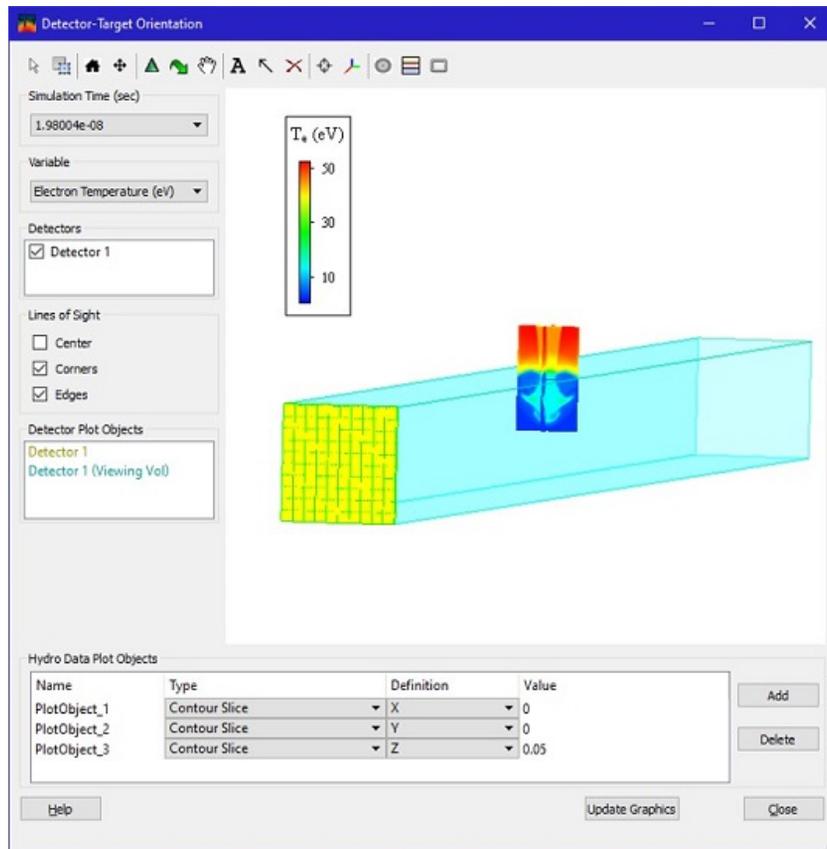


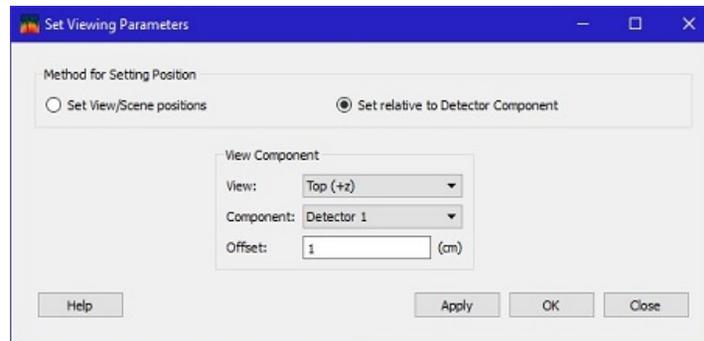
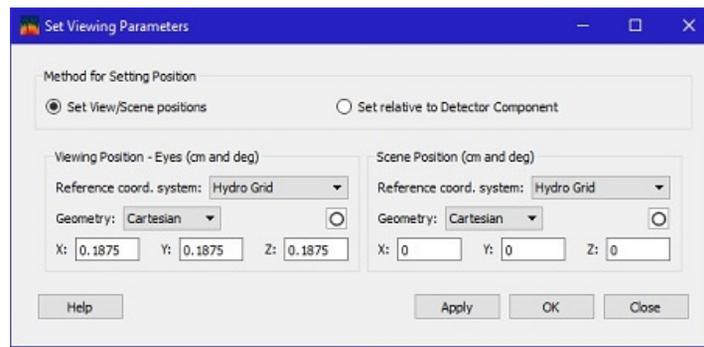
Revisions for SPECT3D Ver. 18.0.0

SPECT3D:

- *Hydro Data Viewer*: Symmetries utilized for hydro grids (e.g., duplicating pie slices, or reflection across planes) can now be displayed.
- *Detector-Target Orientation Viewer*: The viewer was updated substantially.
- Users can now display a variety of contour slice and/or isosurface plot objects.
 - Symmetries utilized for hydro grids (e.g., duplicating pie slices, or reflection across planes) are now displayed.
 - The viewer can now be launch directly from the *Detector* setup widget using the "View ..." button to the right of the *Detectors* list.



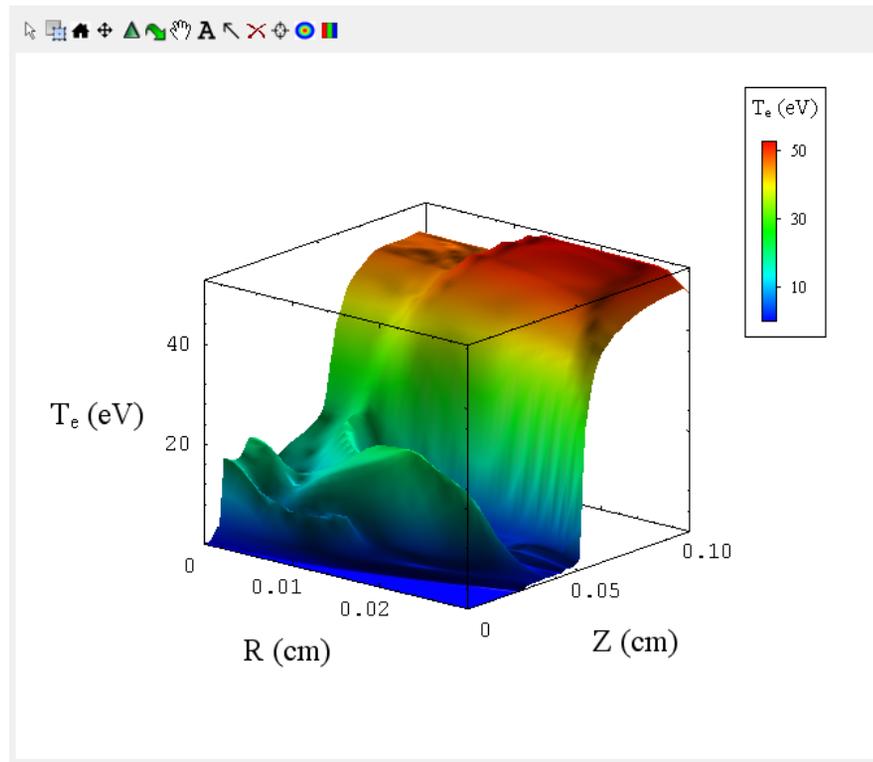
- The view can be manipulated using the tool buttons at the top of the window. The tool buttons (tool tips are provided) support zooming, rotation, translation, displaying axes, showing data, and resetting the view.
- The exact position of the *View* (i.e., "viewer eyes") and *Scene* can be specified using the *Set Viewing Position* button (👁). Two options are available for setting the *View* and *Scene* positions: (1) setting specific coordinates for the *View* and *Scene* positions (left), and (2) setting the viewing parameters relative to a *Detector Component* (right).



- Updates to X-Ray Thomson Scattering in Spect3D:
 - v8.0 of the X-Ray Thomson Scattering is now implemented.
 - Users can force use of Tsytovich model for the total spectrum based on an "alpha" parameter. See documentation for details.
 - Previously, when the "Generate input file for standalone XRTS code" was selected, the resulting input decks did not contain the Gradients section. This section needed to be added by hand in order for the input decks to run with the standalone XRTS code. This has been fixed, so now the input decks should be immediately usable.
 - The "Generate input file for standalone XRTS code" option: previously, this would only produce input deck output for plasma cells which had errors in the XRTS calculation. Now, it will always create an input deck from the first cell encountered by the XRTS code, *in addition to* any cell where an error is encountered.
- Utilizing grids created by *PlasmaGEN*:
 - When specifying a new *Hydrocode File* name on the *Simulation Type* widget, the default plasma variables (on the *Plasma* widget) are automatically loaded.
 - If hot electron data are included in the *PlasmaGEN* Exodus (NetCDF) file, the *Include Hot Electrons* box is automatically checked in the *Plasma* widget.
- Updates were made to improve the efficiency of computing line-of-sight/plasma grid intersections for 2-D R-Z geometry.
- Bug fixes:
 - *Hydro Data Viewer*: several fixes were made for generating isosurfaces.
 - Updates were made to fix problems that occurred for triangular volume elements created for *PlasmaGEN* grids.
 - Previously on Windows, long file paths for run results (more than 256 characters) would fail to run without a helpful error message. Now a helpful error message will prevent runs from initiating if the file path is too long.
 - For some calculations performed multiple times without closing the application and involving switching parameters for population kinetics, grouping for populations in atomic model files could be ignored.
 - Prevents potential crash for calculations which use a combination of a simple atomic model with the "Treat implicit multiply excited state transitions in detail" checkbox checked.

SpectraPLOT:

- Plot manipulation and rendering speed has been greatly increased for high resolution contour plot widgets
- Dragging and dropping plots into other new or existing layers in widgets has been improved in both 2D and 3D
- A new interface have been added to allow users to view 3D plots easily from different lines of sight (along axis and custom views)



- Both 2D and 3D plots can now use the mouse wheel to zoom in and out of the cursor location.
- 3D plots now scale as a function of distance between the eye (viewing location) and scene (focus).
- A new toolbutton has been added to toggle three color axes (X , Y , Z) centered at the plot origin.
- Bug fixes:
 - Rotation plot manipulations now match VisRad controls
 - Reading in a workspace with a uninitialized plot will no longer disrupt the loading process.