The Drawing Tool facilitates drawing points and faces of a graph, while also allowing the loading of objects (stl, tiff, bmp, and nwk) for reference tracing.

1. The drawing tool consists of two axes: the left axis serves as a 2D **drawing** platform, while the right axis functions as a **viewing** platform synchronized with the drawing axis to reflect changes made on the drawing axis.

2. The leftmost button, such as the "Y-Z plane" enables users to switch between different 2D axes, including X-Y, Y-Z, and X-Z planes. Clicking on the button toggles to display the next 2D axis in sequence.

3. A text box located on the left indicates the **third coordinate** of the 2D drawing plane. This can be edited to adjust the third coordinate, allowing for modifications to the Z-coordinate in the XY plane and the X and Y coordinates in the YZ and XZ planes, respectively.

4. In the default state, clicking anywhere on the drawing axis **adds** a point to the network. Two of the coordinates of the point are visible on the drawing axis, and the third coordinate is taken from the value displayed in a corresponding textbox. A log displaying the coordinates of the new point appears at the bottom of the drawing axis.

2. A 3D **gray slab** displayed on the viewing axis indicates the drawing plane on the drawing axis. This plane can be selected and moved along the axes to adjust the drawing plane accordingly. Changing the **third coordinate** and **thickness** alters the slab displayed on the viewing axis, indicating changes to the drawing platform. For instance, in the X-Y view, setting the Z-value to 5 and the thickness to 3 adjusts the slab to start at Z=5 and end at Z=2 (5 - 3). This slab is also reflected in the drawing axes, appearing from Z=5 to Z=2. When adding, moving, or connecting points, operations occur on the topmost plane, where Z=5. Toggling between 2D axes updates both the slab and the drawing view accordingly.

6. There are 5 drawing modes. When a user selects one mode, other buttons are temporarily disabled. The drawing modes include:

- Auto-connect mode: Automatically adds a face between the newly added point and the previously added point.
- Connect mode: Enables users to draw a face by clicking on or near two points consecutively.
- Disconnect mode: Enables users to remove a face by clicking on or near two points consecutively.
- DeletePts mode: Allows users to delete a point and its associated faces by clicking on or near the point.
- EditPts mode: Prompts a dialog box for users to edit the x, y, and z coordinates of a point. Clicking "OK" confirms the changes and repositions the point and its associated faces.
- MovePts button: Allows users to click on or near a point to move the point using a mouse. Clicking on a point enables the user to move it using a temporary mask, which

can be dragged using the mouse. Upon releasing the mouse, the point is repositioned accordingly.

7. **Clear** button, Clears all points and faces added by the user.

8. Additional options include:

- Load nwk: Prompts users to select a .fMx file to load the network onto the axes. These network points and faces are added to the existing network and hence can be edited/manipulated on the drawing axes.

- Load to View: Allows users to load nwk, stl, bmp or tiff files for viewing purposes only, without the ability to edit them. When loading a tiff file, the user can choose the z-value where each frame can be loaded into.

- Save nwk: Saves the added points and faces as pMx and fMx files on the user's system.

- Hide/Show Obj: Toggles the visibility of objects which are loaded using the "Load to View" feature.

- Clear Obj: Clears selected objects that were added using the "Load to View" feature.

- Undo: Reverts the previous operation. Operations that can be undone include add, move, edit, delete, connect, auto-connect, and disconnect points.

- Redo: Re-applies the previous undo operation. If an action was undone, the redo operation restores it.

- Aspect Ratio: Toggles between automatic aspect ratio and equal aspect ratio for the axes.

- Indexing On: Toggles the display of point and face labels on and off.