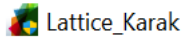# Usage manual for Lattice_Karak
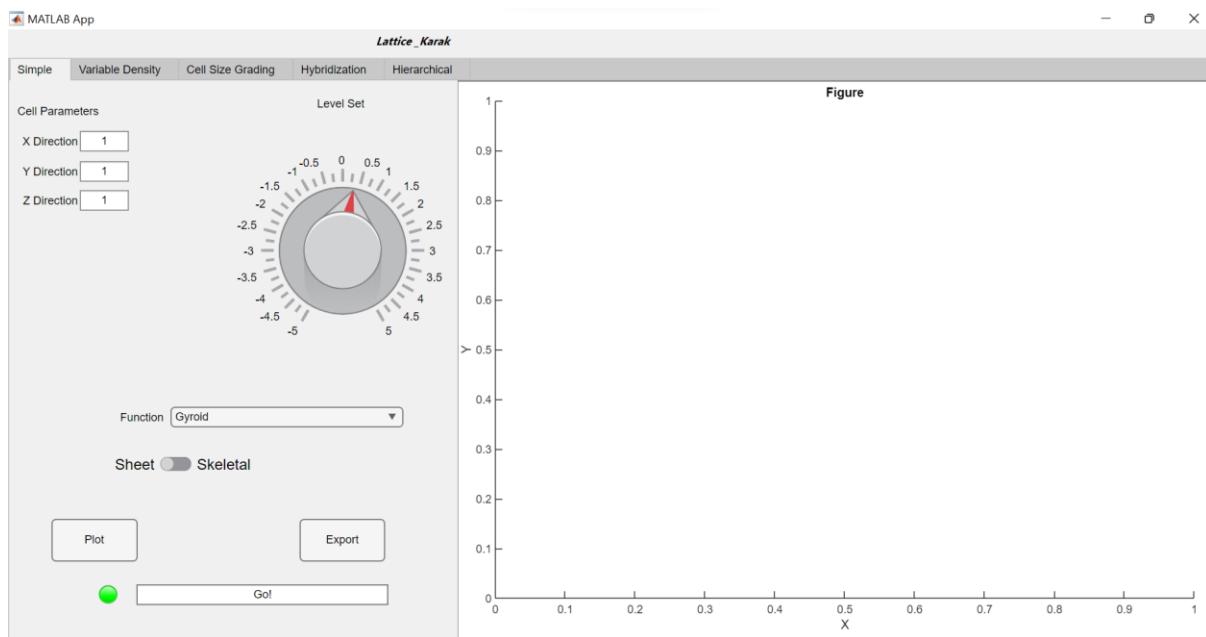
Step 1: Installation

 Lattice_Karak

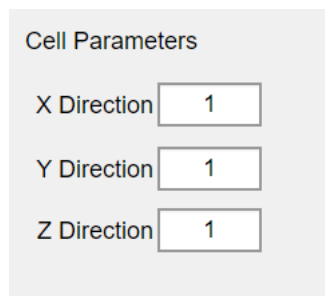Download the .exe file and install in the required folder.

Step 2: Opening

Lattice_Karak automatically will open once installation is done.

The GUI looks as show above.

Step 3: Input of Cell parameters

The Cell parameters i.e., is no cells can be decided by inputting the required no of cells in the given direction. The number field only accepts values greater than 1 and maximum input value is 100. The value you enter will decide the number of cells in particular direction.

Step 4: Density control

The Level set knob controls the density of the TPMS lattice, as TPMS_Karak is to help students and academician to exploit and understand the properties of TPMS; the level set is kept in place of density value. By changing the knob to the desired value, the required level set can be taken.

If there is need to precisely control density then the tab named variable density can be used to generate the TPMS lattice with required density.

Step 5: Choosing a TPMS lattice

By pressing the function drop down, the list containing lattices is shown.
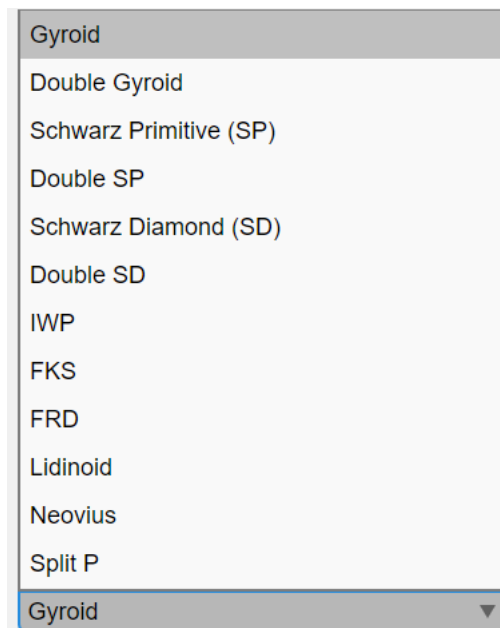
By choosing the required function, the required TPMS will be generated.
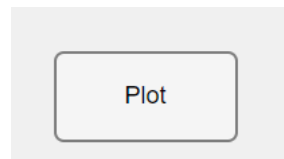
Step 6: Type of network selection

The selection of sheet based model or skeletal based model can be placing the slider in the required type.
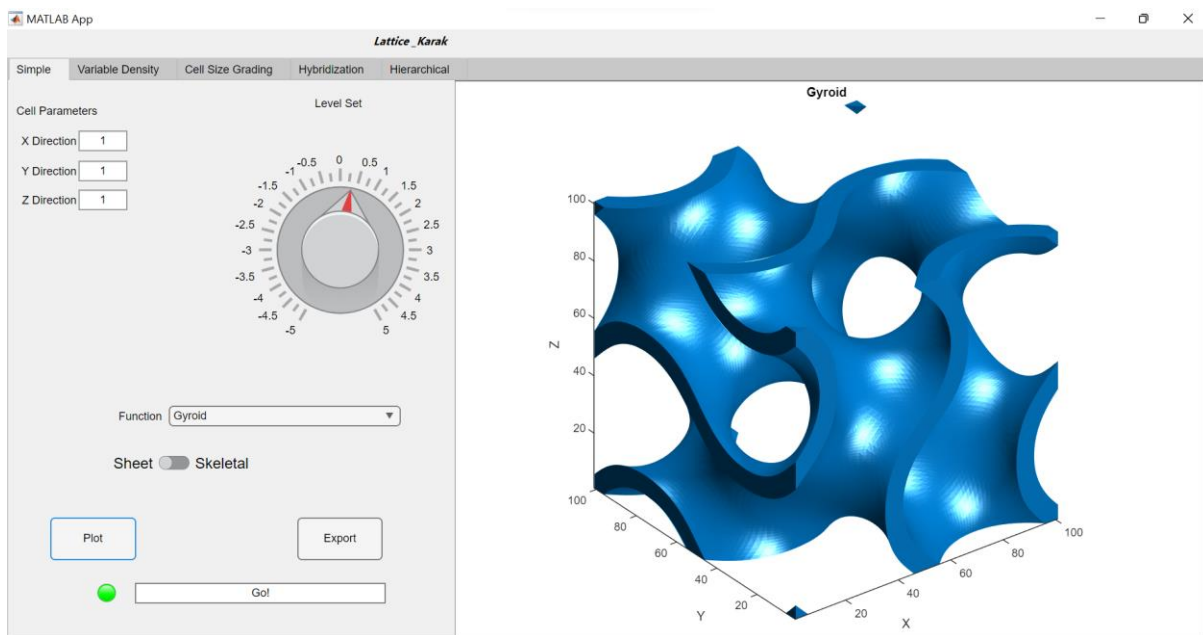
Step 7: Generating of the lattice

Once all the above options are filled. Then pressing the plot button will generate the lattice structure.

Plot

Once the plot button is pressed the lamp will turn into red, indicating the TPMS structures is being generating. Once TPMS structure gets generated it turns into green again.
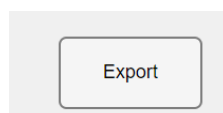
Go! Please wait...
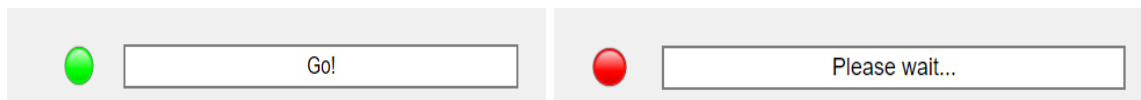
The Generated TPMS is shown in the right side of the app.
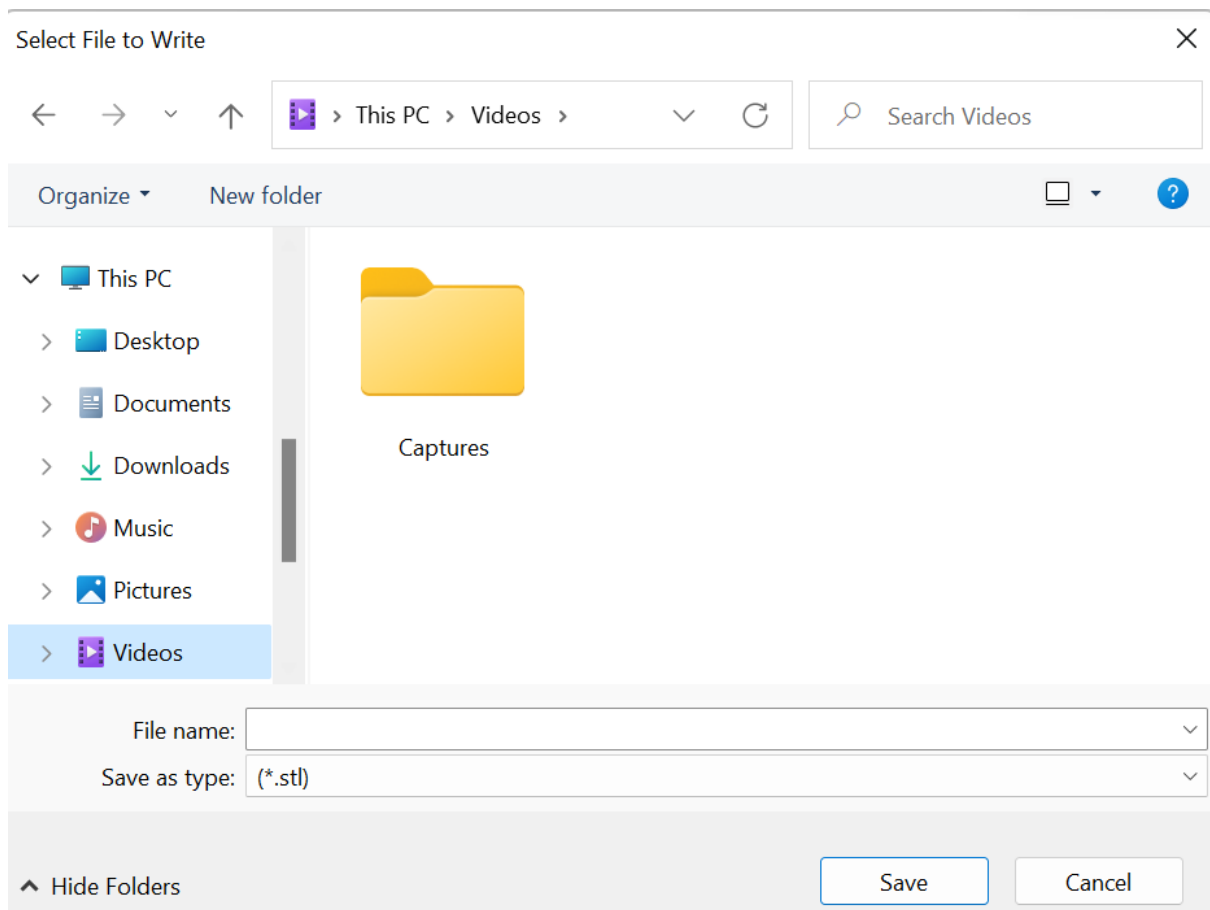

Step 7: Exporting of the lattices

Once the lattice is generated, the generated lattice can be exported by clicking the export button.

Export

A dialogue box opens asking the user to choose the location and name of the file to be stored.

Once name is given and folder is chosen. The given lattice is automatically stored in STL format.

The same procedure applies for other Tabs like, variable density, varying unit cell, hybridization and hierarchical.