

Figure 4.5 in thesis - Crystalline anisotropy and all kernels

Initial setting for all three plots:

$N = 2^{gpi}$, number of points in one spetial direction of domain

$\delta t = \frac{1}{2^{dti}}$, diffusion time

$L = 10$, length of the domain in one spetial direction

$dx = L/N$, grid size

$gpi=13 \implies dx = 0.0012$ and $dti = 5, 7 \implies \delta t = 0.078, 0.00195$ respectively.

For direct plot

In 'figure 4.5' folder, there are 3 different folder, 13_5, 13_7 and optimal. Run the '.m' file in each folder.

Each of this folder have saved result from all the kernels for crystalline anisotropy (square as a Wulff shape).

Analytical solution is given directly by the sign distance form of square.

Note: Automatic saving of plot leads to change in the position of small subplot, therefore it is recommended to maximize the plot and then save it manually. Approximate time required for one plot is 20 minutes.

To obtain the numerical result (i.e., saved results in above)

In 'figure 4.5' folder, one more folder present i.e., Z_Crystalline. Check the "A_main.m" file, choose wich plots you want, out of 3 plots and select movie option. It will generate all the necessary files for all three plots i.e., ".m" files of numerical stable solution for each kernel. All the values of 'dti' and 'gpi' have arranged according to each plot.