Wydział:	WIMiIP
Kierunek:	Informatyka Techniczna
Tryb studiów:	Niestacjonarne
Rok:	1
Przedmiot:	Multiscale Moddeling
Autor:	Michał Kościsz

Grain Growth Alghorythm - Report

1. GUI

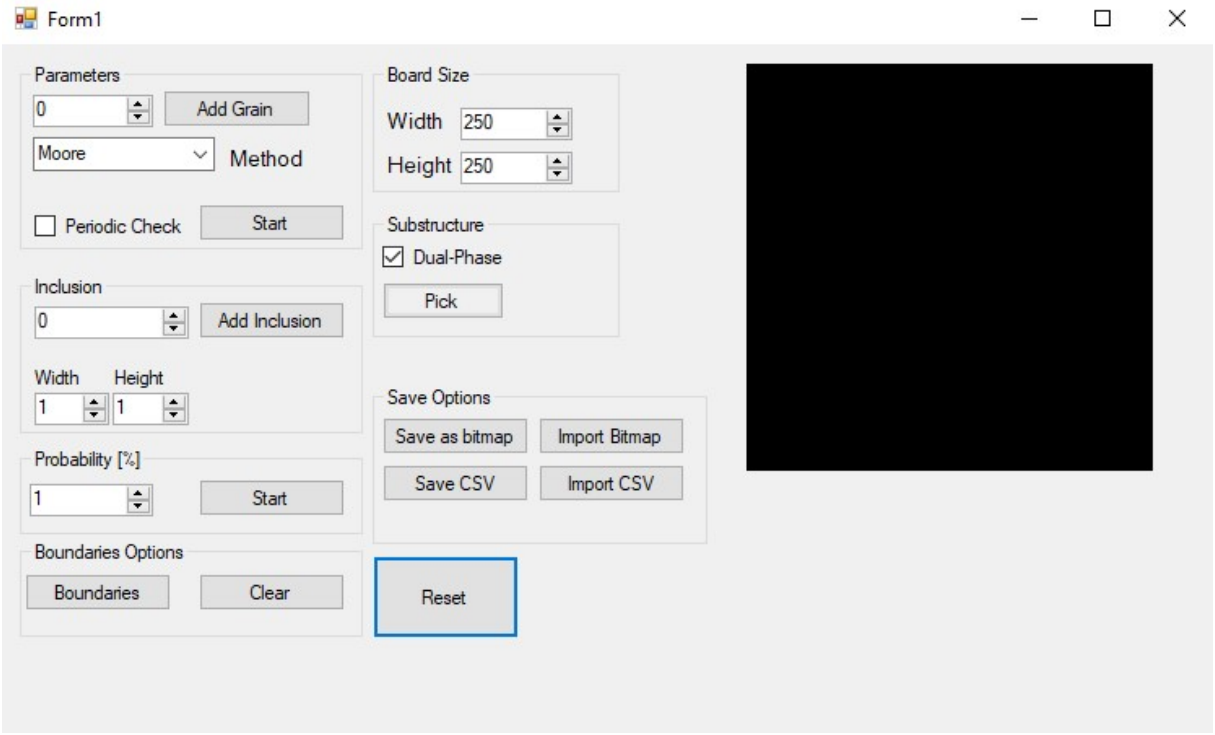

Figure 1. GUI window

2. Description of functionalities

2.1. Parameters section

In this section we determine the number of grains, the method of grain growth and condition of periodic option. When we set this values, click ADD GRAIN button and then START button, the growth will Begin.

Figure 2. Result of grain grow

2.2. Board Size section

In this section we setup the grain growth area. Minimum value for Width and Height is 1px Chile Maximum value for Width and Height is 500px.

Figure 3. Board size setup

2.3. Inclusion section

Inclusions can be places at the beginning of simulation as well as at the end.

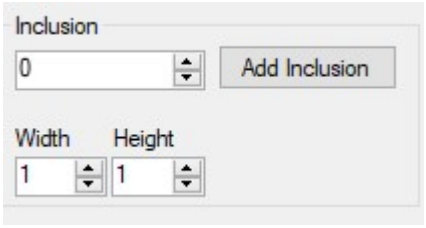

Figure 4. Inclusion setup space

2.4. Probability

Here we can set probability of shape control algorithm. First we must add grains and then click START button In probabilisty space.

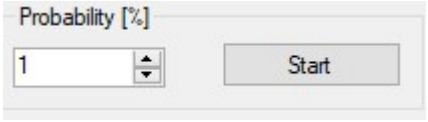

Figure 5. Probability setup

2.5. Boundaries

This option allows us to separate grains making borders.

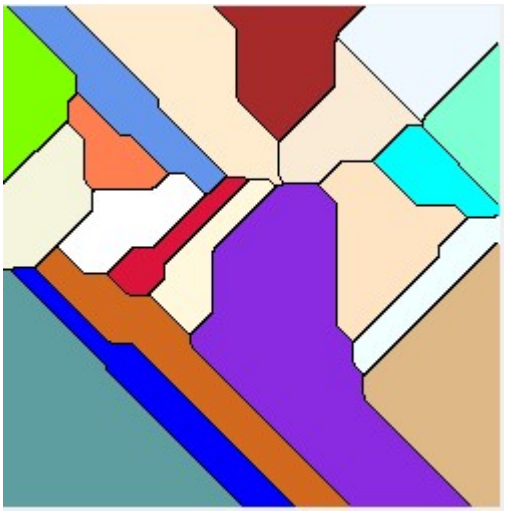

Figure 6. Bounded grains

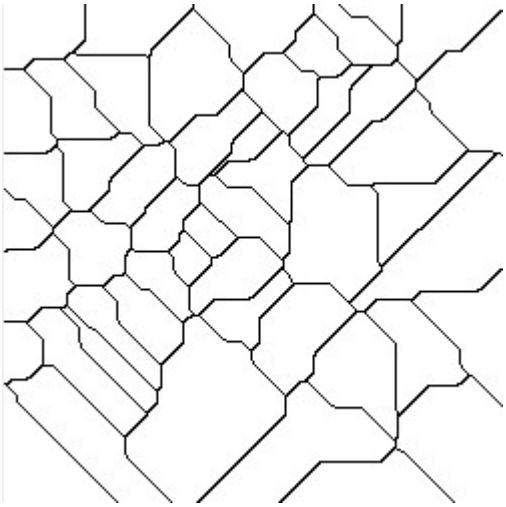

Figure 7. Example of clear

2.6. Substructures

Using this option we can choose grain that we wont and separate the grain.

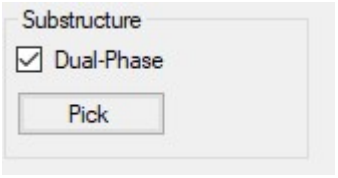

Figure 8. Substructure space

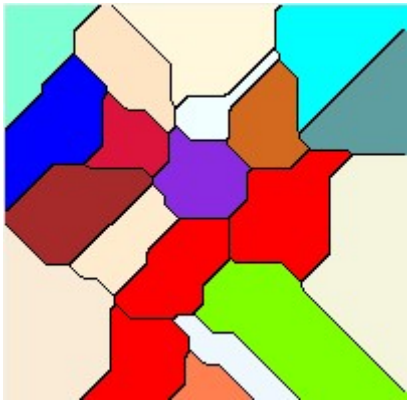

Figure 9. Dual-Phase example

2.7. Save Options

Here we can save our results to a bitmap Or to a CSV file. Program Allowi us to import data from bitma or CSV.

2.8. Reset Button

Reset the result and allow us to make new simulation.

3. Summary

This program allows us to tailor the simulation to ours needs. By far the most important factor in performance isprobability of modified Moore rule – shape control algorithm. Model is simple enough that the simulation for whole domain is reasonably buick. With pretty simple model of grain growth using CA we can get satisfying results.