Generation of 2-D digital microstructures

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a) *Equi-axed grains:*

Grid size: 500 X 500
No. of Grains: 300
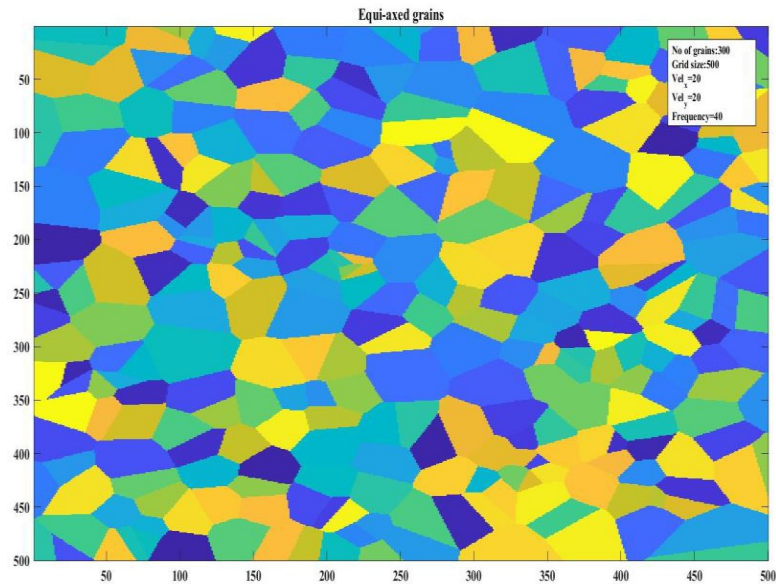Velocity in X direction: 20
Velocity in X direction: 20
Frequency: 40

Fig. Equi-axed grains

b) *Elongated grains:*
Grid size: 500 X 500
No. of Grains: 300
Velocity in X direction: 20
Velocity in Y direction: 60
Frequency: 40

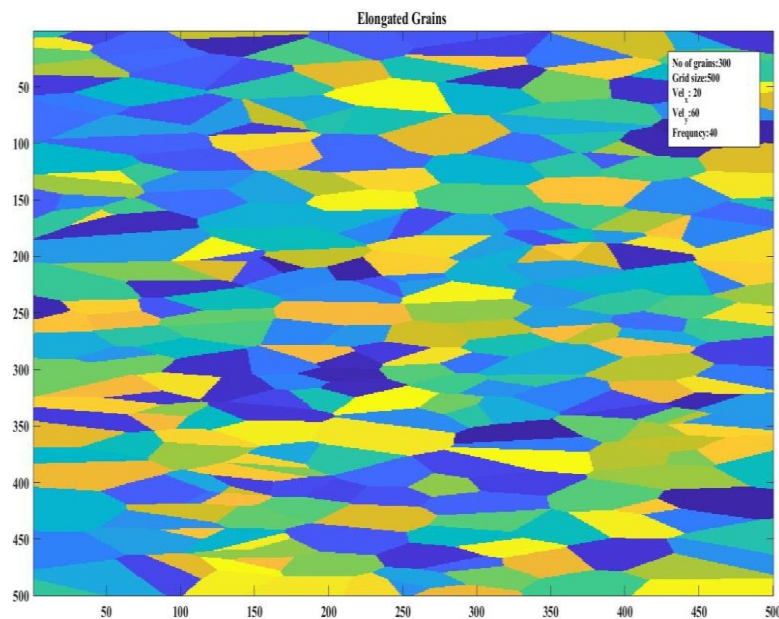**Fig.** Elongated grains

No. of Grains: 100
Grid size: 1024 X 1024
Velocity in X direction: 50
Velocity in Y direction: 50
Frequency: 30
Grain interior pixel fraction: 0.9552
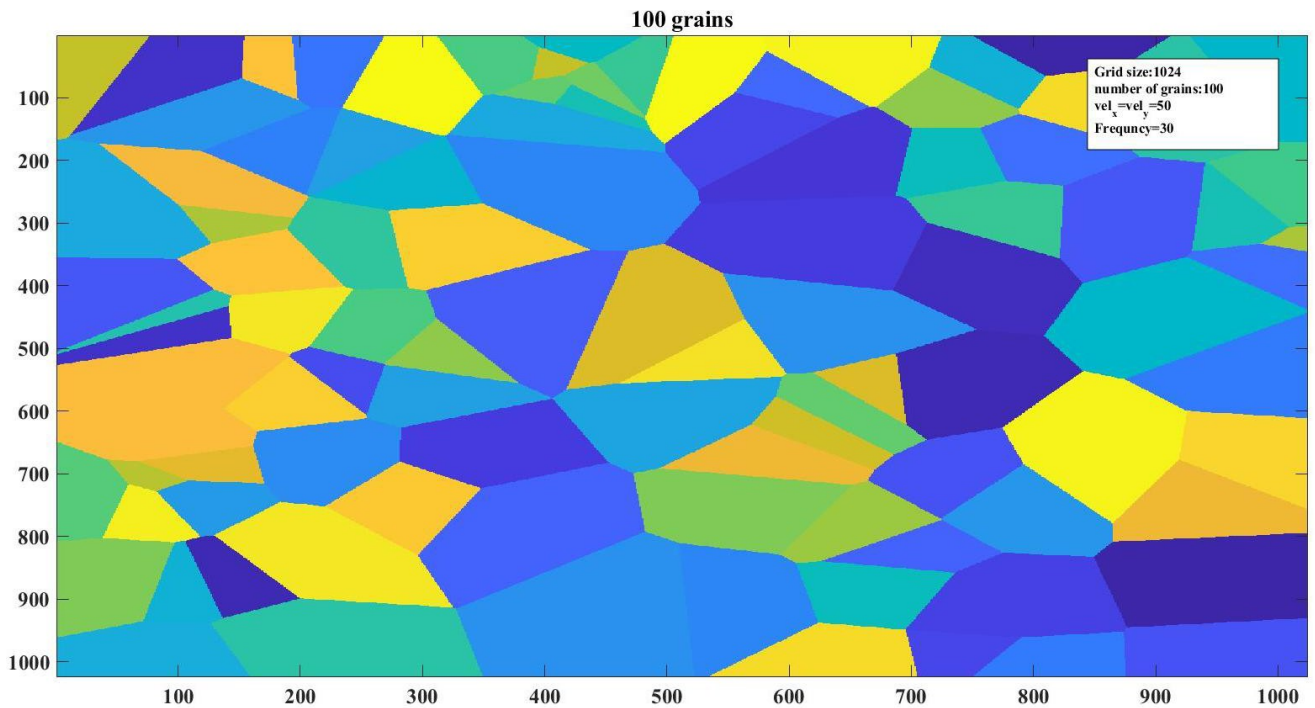Grain boundary pixel fraction: 0.0441
Triple point pixel fraction: 0.00069

Fig. 100 grains

No. of Grains: 500
Grid size: 1024 X 1024
Velocity in X direction: 50
Velocity in Y direction: 50
Frequency: 30
Grain interior pixel fraction: 0.8966
Grain boundary pixel fraction: 0.0994
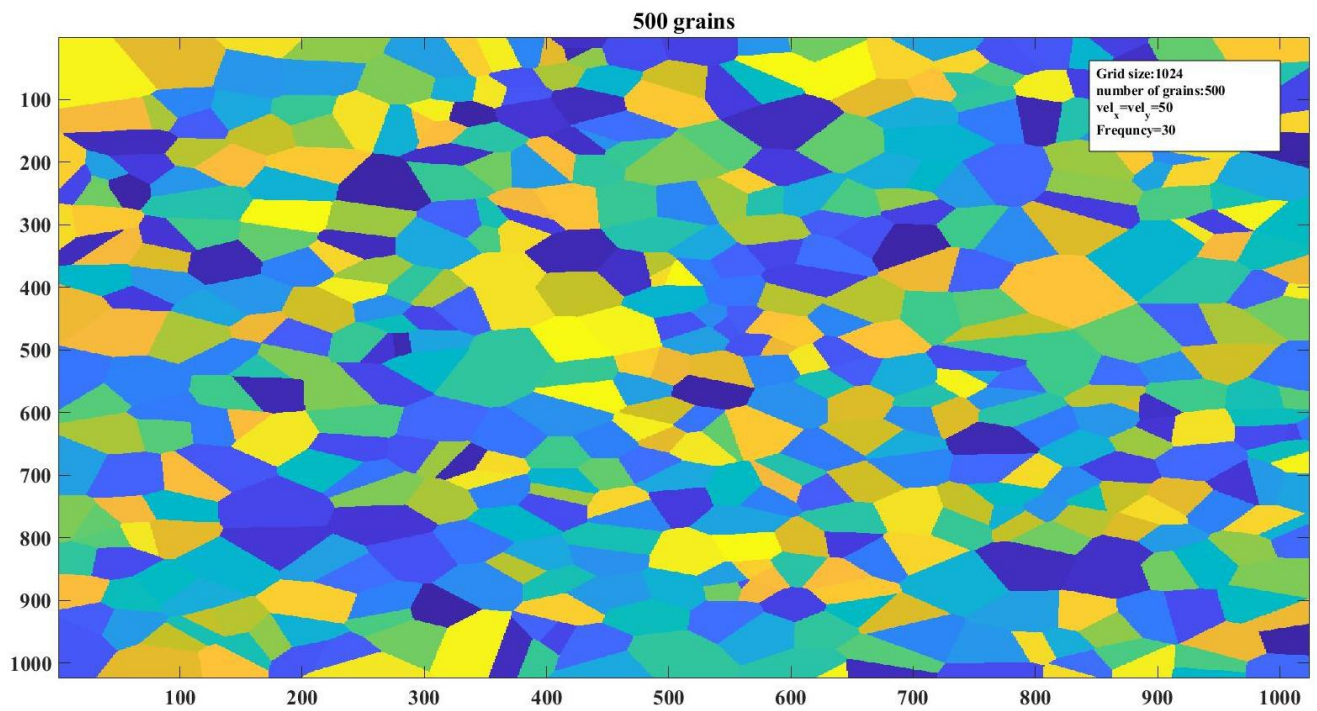Triple point pixel fraction: 0.0039

* Output in the next page*

Fig. 500 grains

No. of Grains: 1000
Grid size: 1024 X 1024
Velocity in X direction: 50
Velocity in Y direction: 50
Frequency: 30
Grain interior pixel fraction: 0.8510
Grain boundary pixel fraction: 0.1409
Triple point pixel fraction: 0.0079
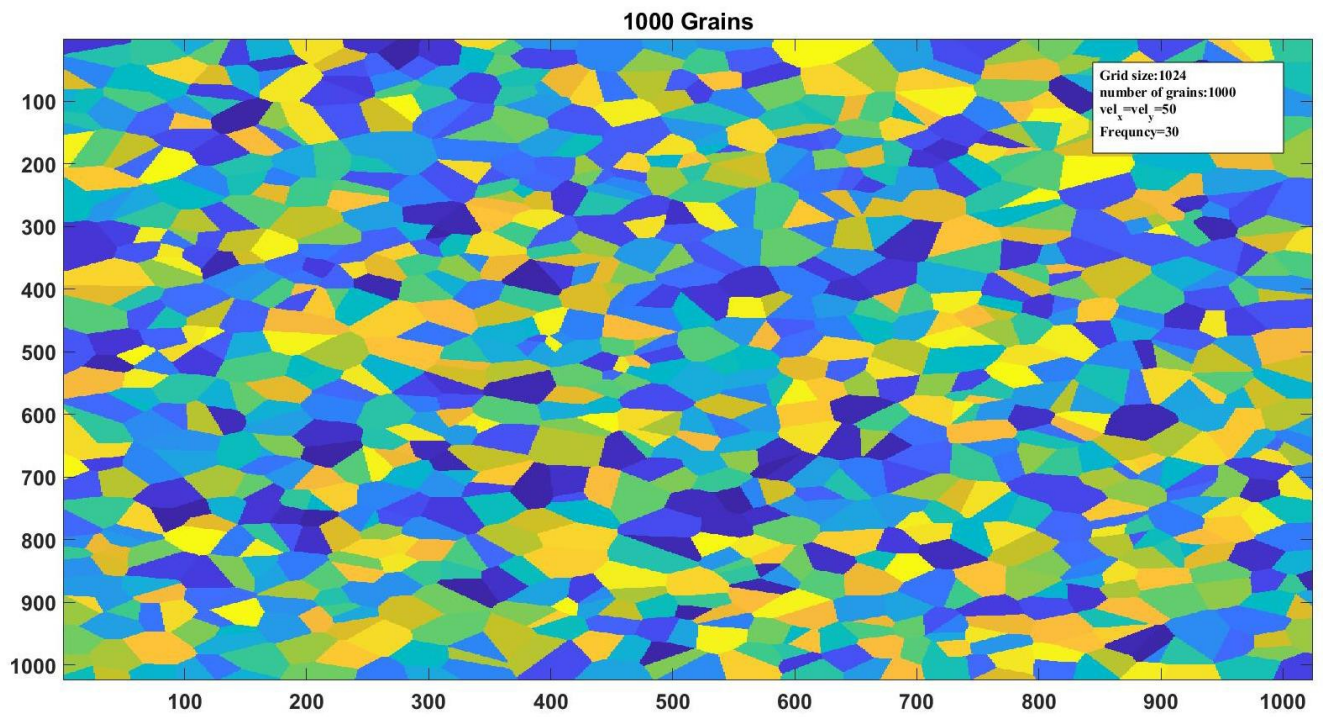
* Output in the next page*

Fig. 1000 grains

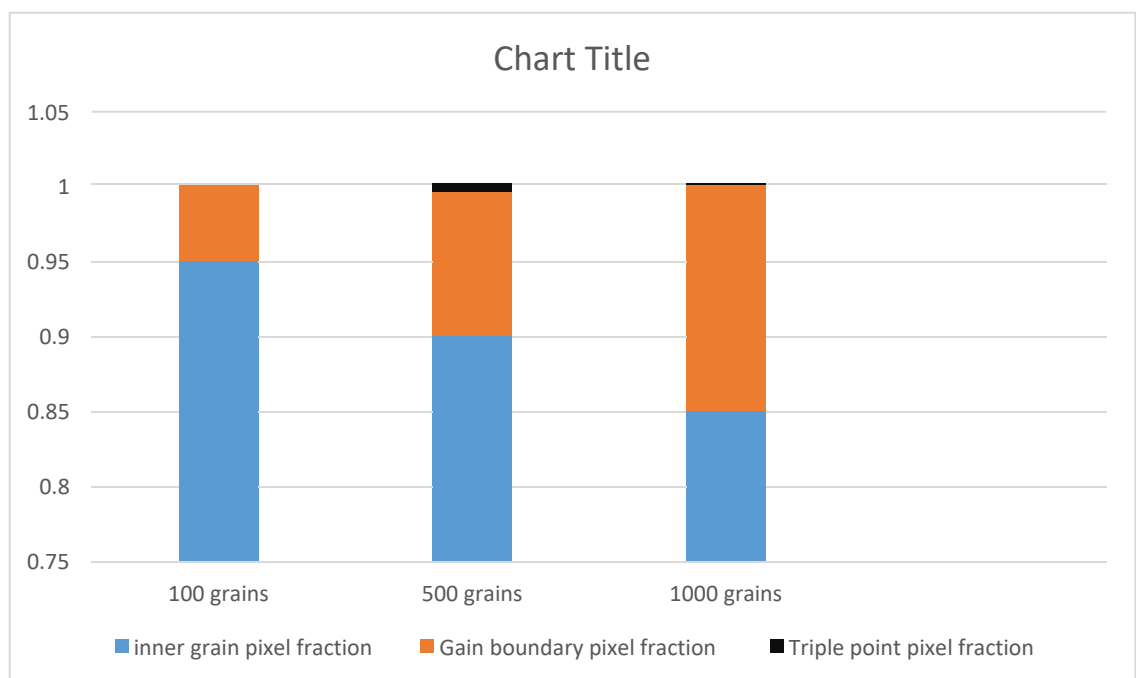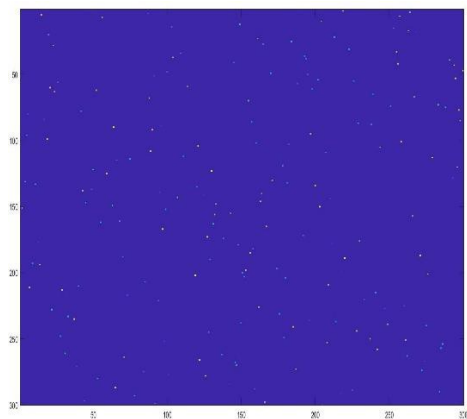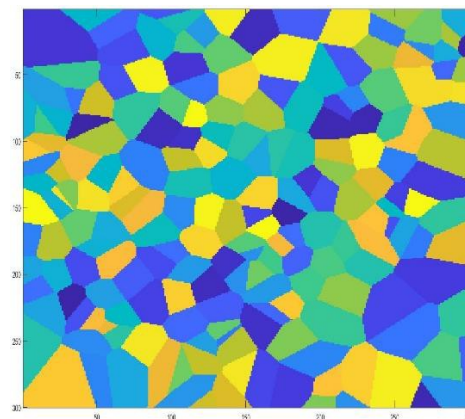
Comparison between three

Fig. Comparison of pixel fractions for 3 different number of grains

*Snap shots at the beginning and at the end of the simulation:

Beginning

End

END