

AGH



Multiscale Modeling

Classes Schedule



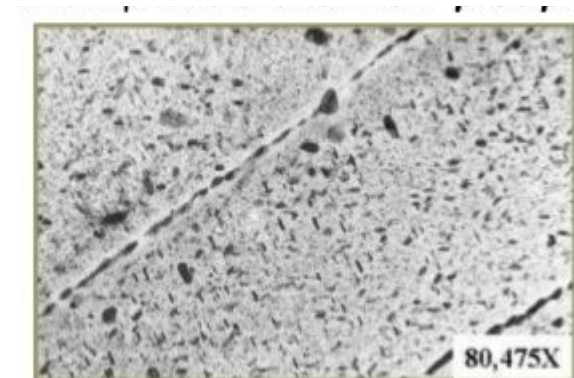
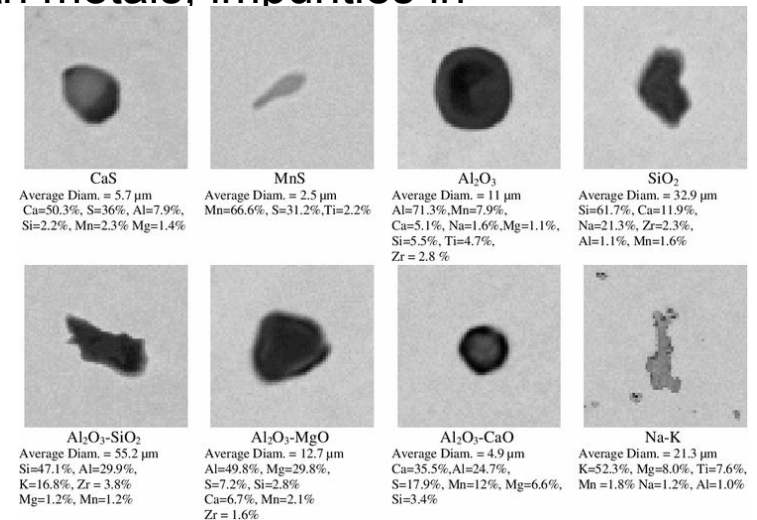
1. Kickoff meeting. Introduction. Simple Grain Growth Cellular Automaton
- 2. Inclusions, precipitations feature**
3. Consideration of grain curvature
4. Substructures
5. Boundaries detection
6. Leftovers, project submitting

Spherical features

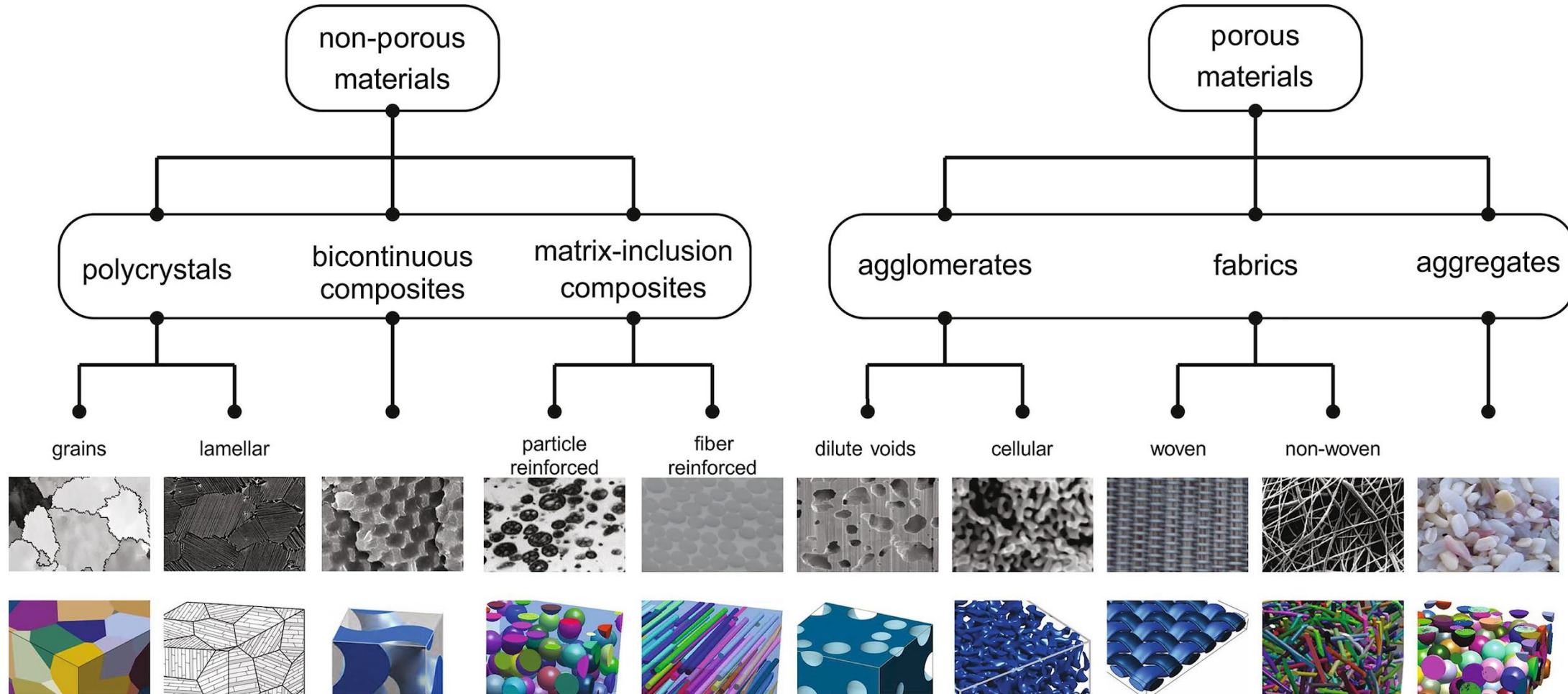
- Inclusions - compounds of nonmetals (O, S, C, H, N) with metals, impurities in material

- Decreasing quality of material
 - Cracking
 - Fatigue

- Precipitations - small, uniformly dispersed particles of a second phase in first phase matrix
 - Precipitations hardening



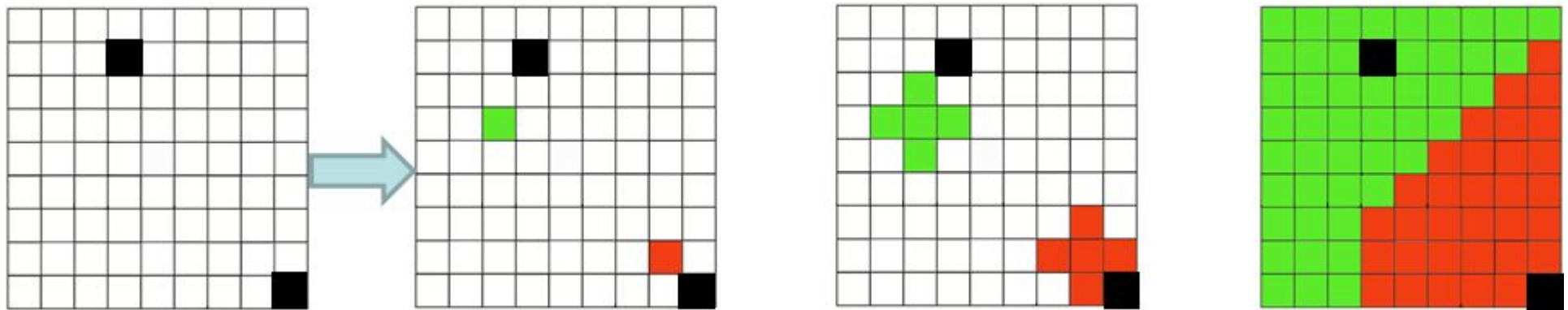
Digital Material Representation





Movie

Progression



Implementation



- User can specify no. of inclusions
- Inclusions should have round shape (circle)
- User can specify min and maximum radius
- Each inclusion should have random radius in range between selected min and max
- Add another internal variable “phase” to the model of the cell - the inclusions are another phase, include the new variable in the import / export functionality