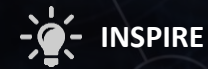




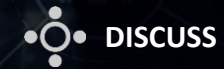
Fall Series 2021
Modeling and Simulation
16 Nov 2021



INSPIRE



CONNECT



DISCUSS

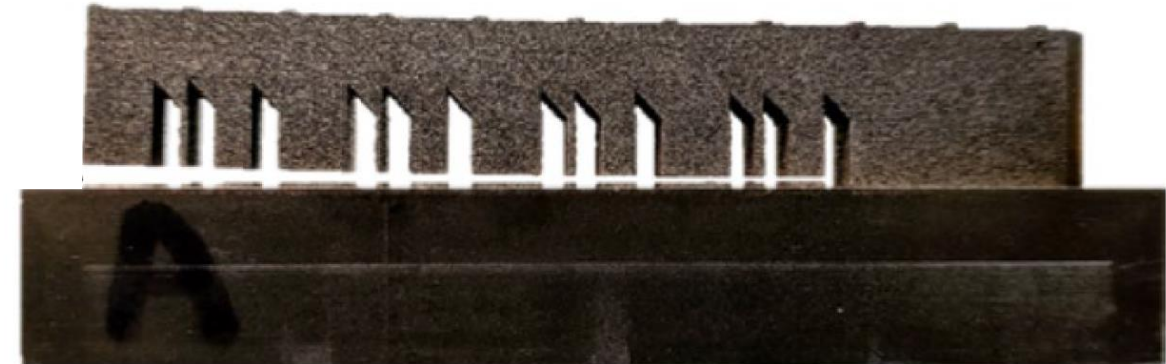
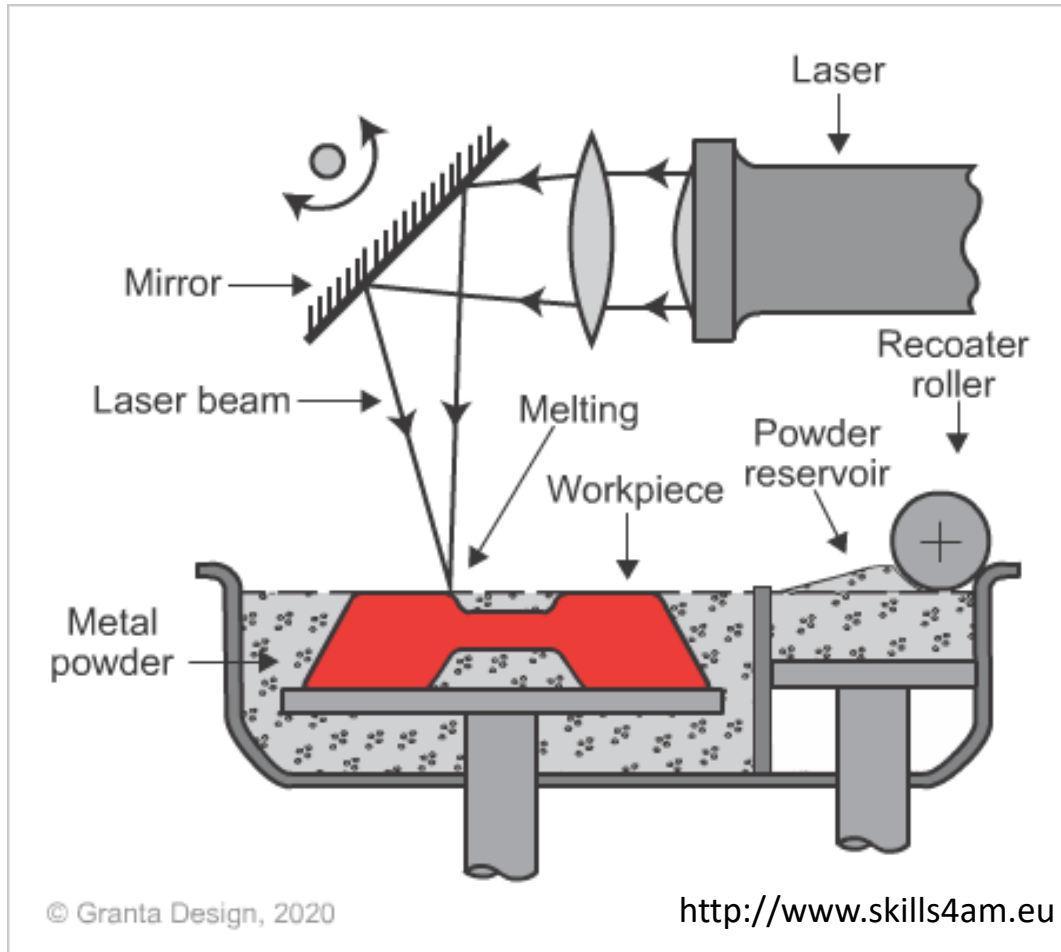


IGNITE

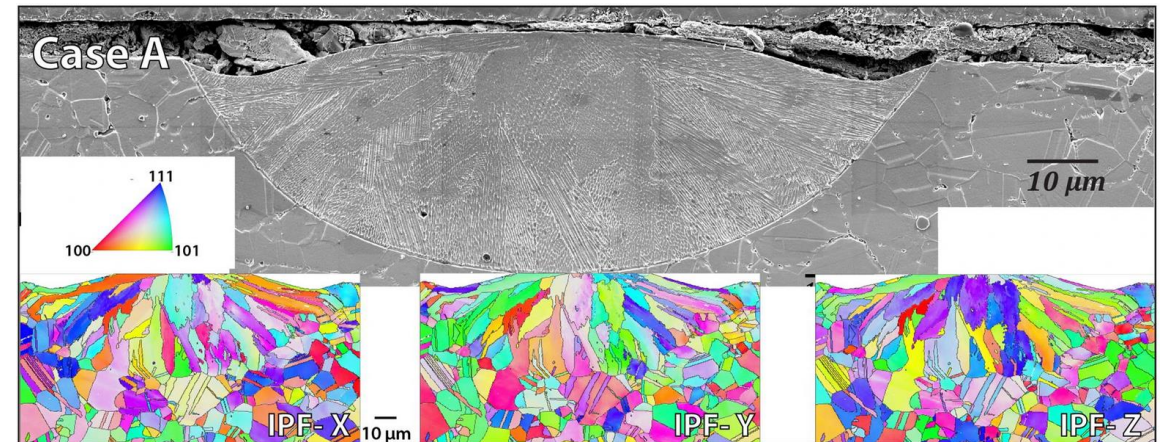
Modeling and Simulation of the Laser Powder Bed Fusion Process

Oliver Boolakee, Siby Jose, Martin Geier and Laura De Lorenzis
Computational Mechanics Group, D-MAVT, ETH Zurich

Laser powder bed fusion – first time right



Levine et al. (2020)

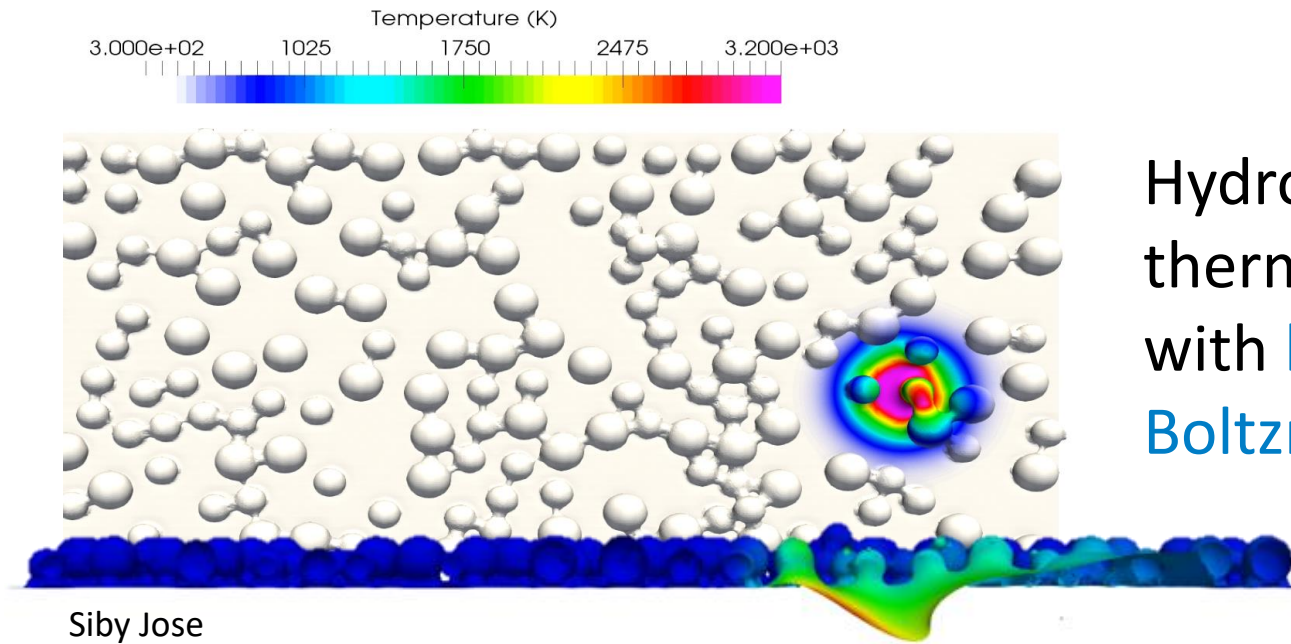


Stoudt et al. (2020)

Predictive capabilities by simulation for process-property relations

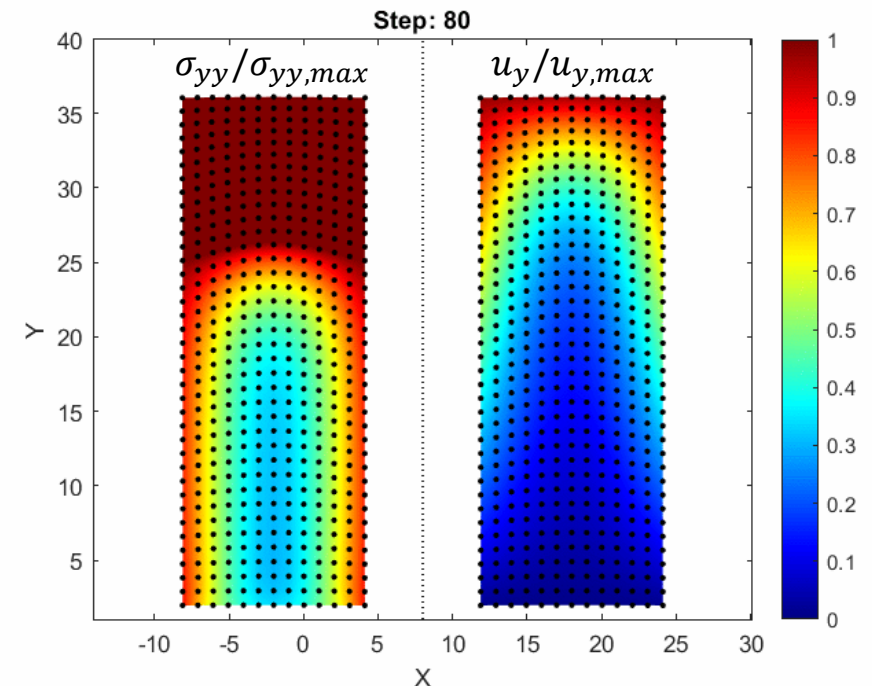
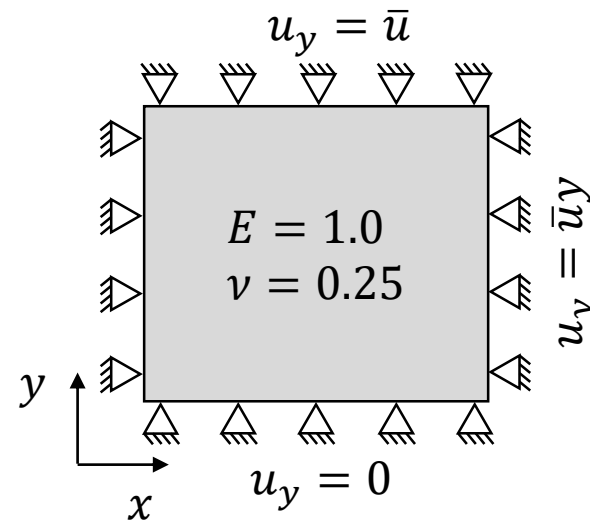
Challenge

- Multi-phase
- Multi-physics
- Multiple relevant time and length scales

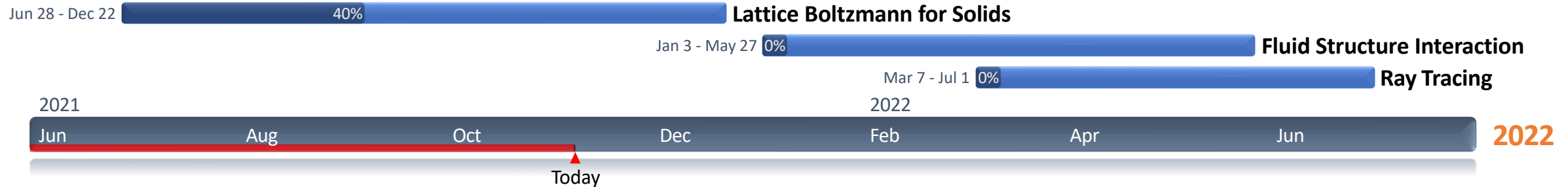


Hydro- and thermodynamics with **lattice Boltzmann method**

- **Solid mechanics** using lattice Boltzmann?



Support



- **Discussion** with starting/experienced researchers in the fields of
 - Lattice Boltzmann method
 - Fluid-Structure interaction
- **Data** from additive manufacturing test beds
 - Integrating sphere
 - Neutron diffraction imaging
 - Dynamic X-ray radiography
- Open source **code** or **library** for ray tracing

Contact



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