

Modeling of Flow Boiling and Thin-Film Evaporation Using the Material Point Method

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OBJECTIVE

Develop the Material Point Method for modeling bubbles and evaporating thin films

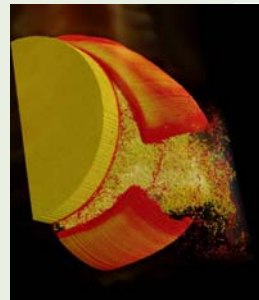
IMPACT

The Material Point Method could help understand:

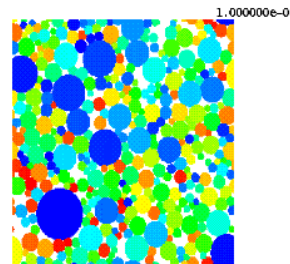
- Bubble growth and movement in pool boiling and flow boiling in microchannels
- Evaporating thin films
- Microscale flows
- Granular flows
- Fluid-structure interaction in devices like piezo fans

APPROACH

- Domain discretized into material points and followed through out the deformation history
- Regular structured grid used as a computational scratchpad for computing spatial gradients of field variables and refreshed for the next time step



Container Explosion
C- SAFE
Univeristy of Utah



Particulate Flows
D. Sulsky
U. New Mexico

