

### Traditional FEA (JMAK)

FEA element

JMAK Model(Empirical kinetics)

Compute phase fractions

Select material props.based on predominant phase

### kMC-Coupled FEA

FEA element

kMC Simulation(Event-driven kinetics)

Track evolving microstructure

Assign material props.locally per event state

#### Key Difference:

JMAK: Properties from phase fractions

kMC: Properties from dynamic event-based states