Overview Chap. 4
Chapter 4: Mechanisms and Kinetics of Phase Transformations
PART-2: Isothermal Transformations (TTT diagrams)

- Introduction to TTT diagram (solid-solid transformations)
  - Motivation and definition
  - Derivation of “C-shape” curves from the “Transformation rate” curves from Chap. 3
  - “S-shape” curves (Sigmoid curves)
  - Avrami Equation
  - Construction of “C-shape” curves from “S-shape” curves

- Introduction to “Phase Transformations” in steel (Fe-C)
  - Equilibrium transformations in steel
    - Eutectic transformation
    - Eutectoid, proeutectoid, and hypoeutectoid transformations
    - Peritectic transformation
  - Non-equilibrium transformations in steel
    - Martensitic transformation
    - Bainite formation
    - Spheroidite formation
    - Tempered martensite

- TTT diagram of steel (Fe-C)
  - Isothermal heat treatment curves
  - Tuning Phases (microconstituents) and Microstructure (fine vs coarse) through multiple-step isothermal heat treatments