Structural effects of phase transformations

(Year 4, semester I, 10 h, exam)

Lectures given by: Dr **Marek Faryna** Ph.D., D.Sc.

1. title: **Principles of solidification (2 h)**

   scope: Homogeneous nucleation; heterogeneous nucleation; nucleation and growth in solid-state reactions

2. title: **Transformations in solids (2 h)**

   scope: Description of overall transformation; time-temperature-transformation diagrams

3. title: **Transformation to stable phases (2 h)**

   scope: The Fe-Fe_3C phase diagram; isothermal transformations in steels

4. title: **Transformation to stable phases (2 h)**

   scope: The eutectoid reaction; phases and composition of pearlite; hypo- and hypereutectoid steels; spinodal decomposition

5. title: **Transformation to transient phases (2)**

   scope: Controlling the eutectoid reaction; the bainitic reaction; the martensitic reaction and tempering