



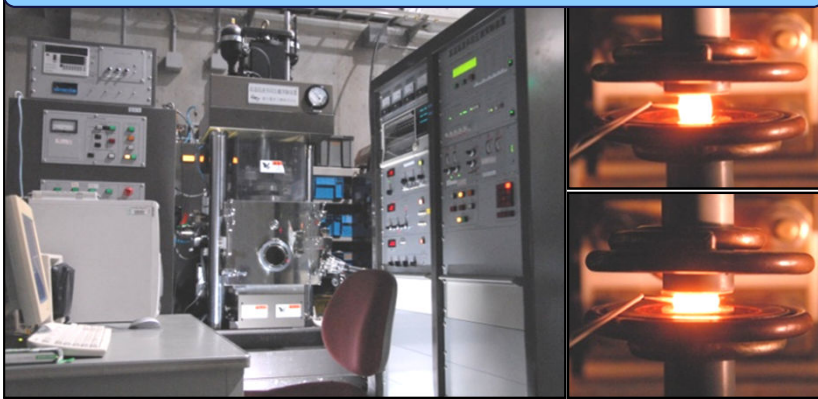
Quantification of microstructure evolution under hot forming for the control of mechanical properties of tool steel



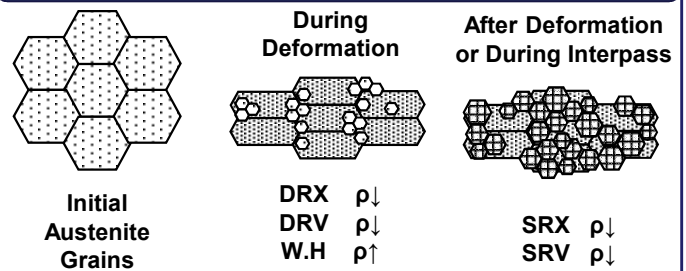
Chair for Hyper-functional Forming
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The most important demand for structural metals is good mechanical properties, which are governed by the microstructure of hot-formed product. Optimization of microstructure and forming processes design requires quantification of microstructure evolution during forming or in the inter-pass time of multi-pass processes. The acquisition method of material data, which describes the kinetics of microstructure evolution, is described and the investigated material data for tool steels is presented. The obtained material data could be regarded as a 'material genome' as it gives us the basis of estimating the evolution of microstructure during hot forging or hot rolling.

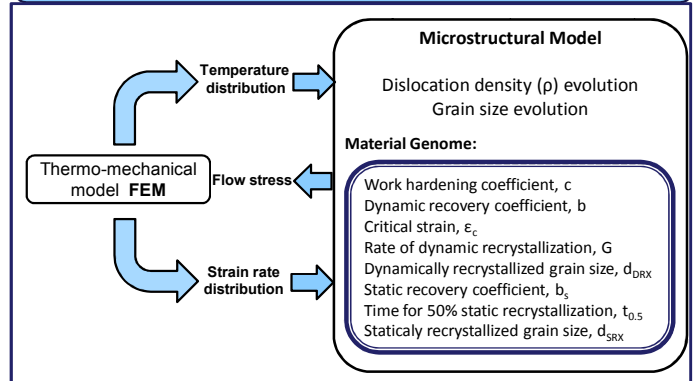
Single and Double Compression Test



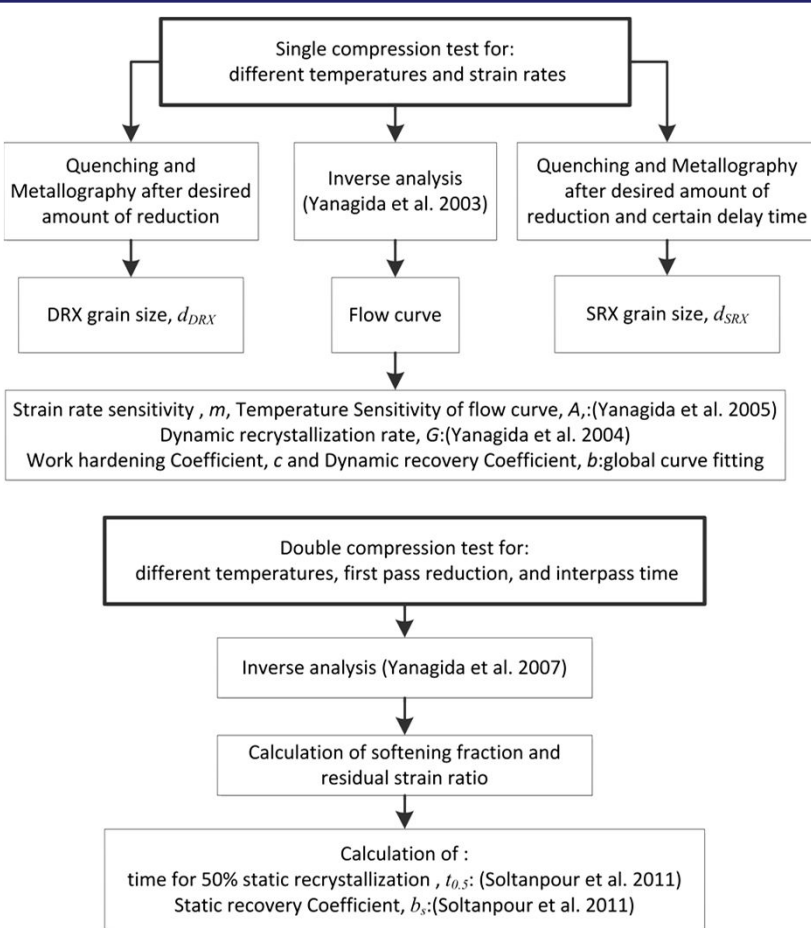
Microstructure Evolution



Combined Microstructure and FE Model



Flowchart of the Acquisition Method



Application

Prediction of grain size distribution in plain strain compression of SKD61 tool steel

