

Master thesis!

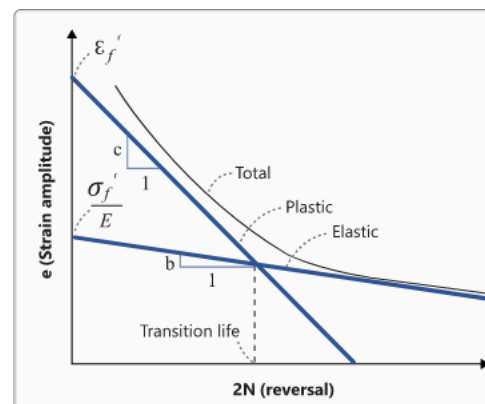
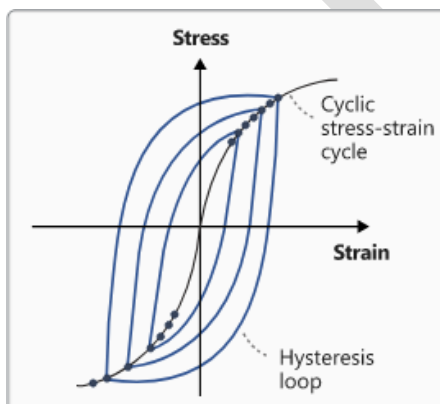
Lifetime Model for Steels with a unstable Stress-Strain Curve

Motivation

Using a strain-based approach it is possible to describe the fatigue life by the damage model of Smith, Watson and Topper. Therefore, it is mandatory to describe the cyclic stress-strain curve by the relationship of Ramberg and Osgood. This works for steels with a stable hardening behavior. For steels with an unstable hardening behavior the approach must be improved. The aim of the master thesis is to review models for materials with unstable hardening behavior, to benchmark them and to apply some to a problem.

Taks:

- Literature review to models for materials with unstable hardening behavior
- Analysis of the hardening parameters for existing test data
- Lifetime calculations using a stepwise approach
- Lifetime calculations using a mean value approach
- Comparison of the approaches
- Scientific poster as a summary of the thesis
- Documentation (Master thesis)



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