Knowledge FOr Resilient soCiEty

MSc Project

Technical University of Denmark
(DTU)

Co-funded by the
Erasmus+ Programme
of the European Union

Experimental study on mechanical properties of fire exposed concrete

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Master Thesis Project

Motivation

- Incidents of collapse of concrete buildings due to fire exposure,
- Discrepancies regarding strain and strength models found in literature and Eurocode

Aims

- Investigation of stress-strain relations of concrete exposed to compression at elevated temperatures,
- Comparison of the results with existing models

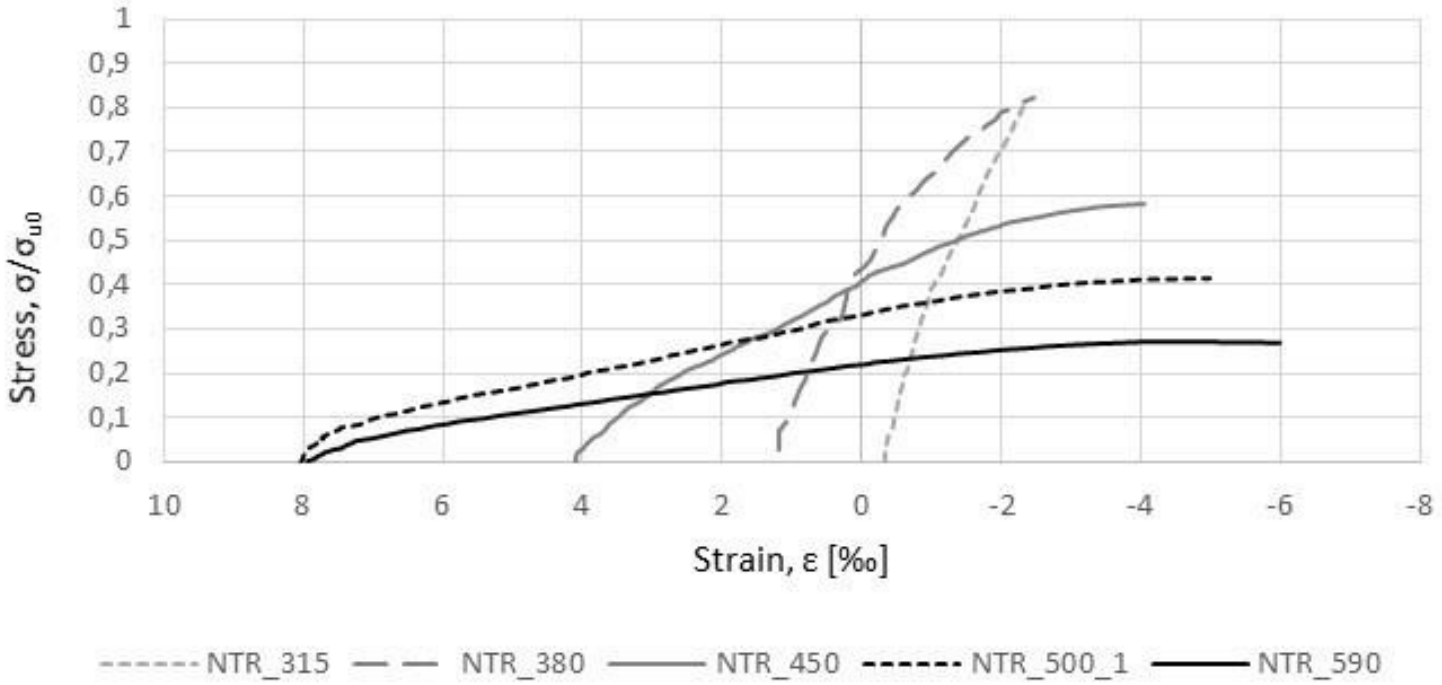
Methods

- 2 types of tests:
  - **transient** (preloaded specimen is heated up until failure or until max temperature is reached)
  - **non-transient** (specimen is first heated up and then compressed until failure)

- Equipment:
  - cylindrical oven
  - Instron compression machine

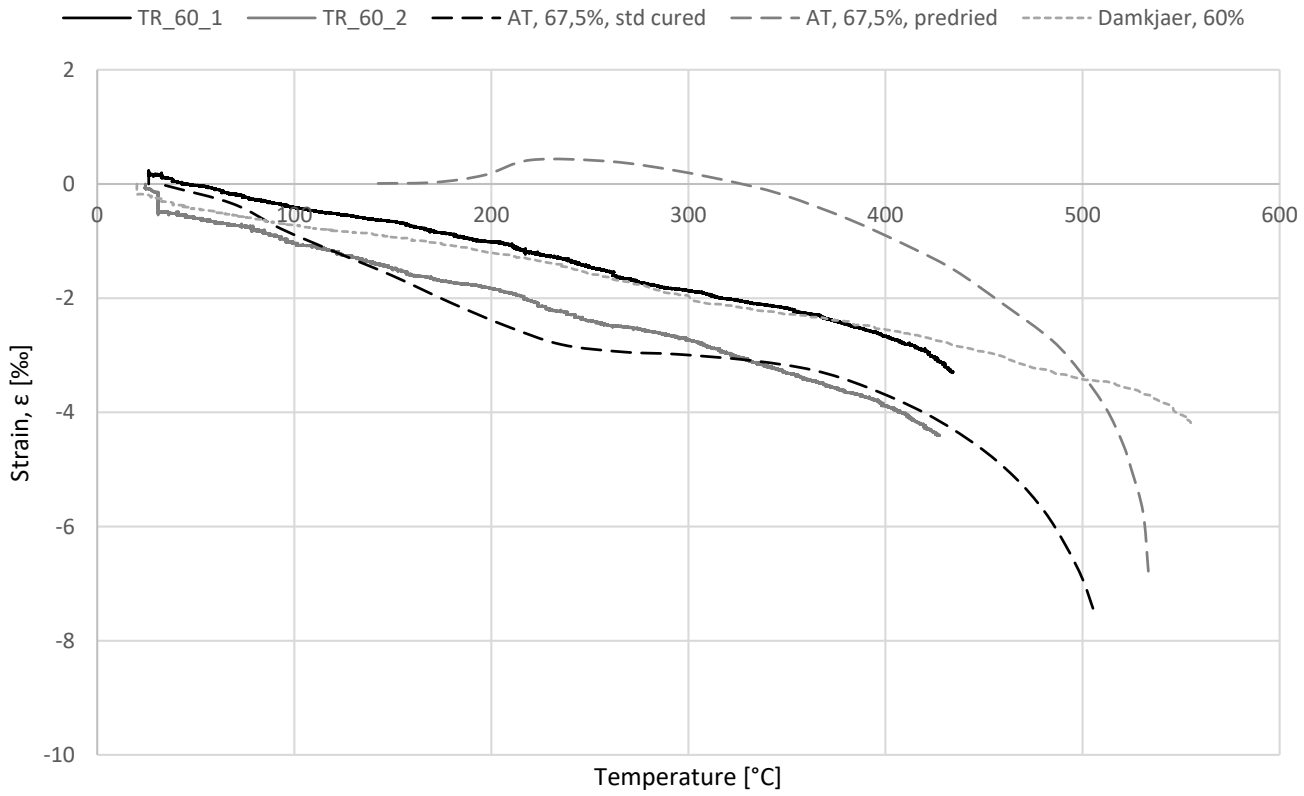
Results: non-transient tests

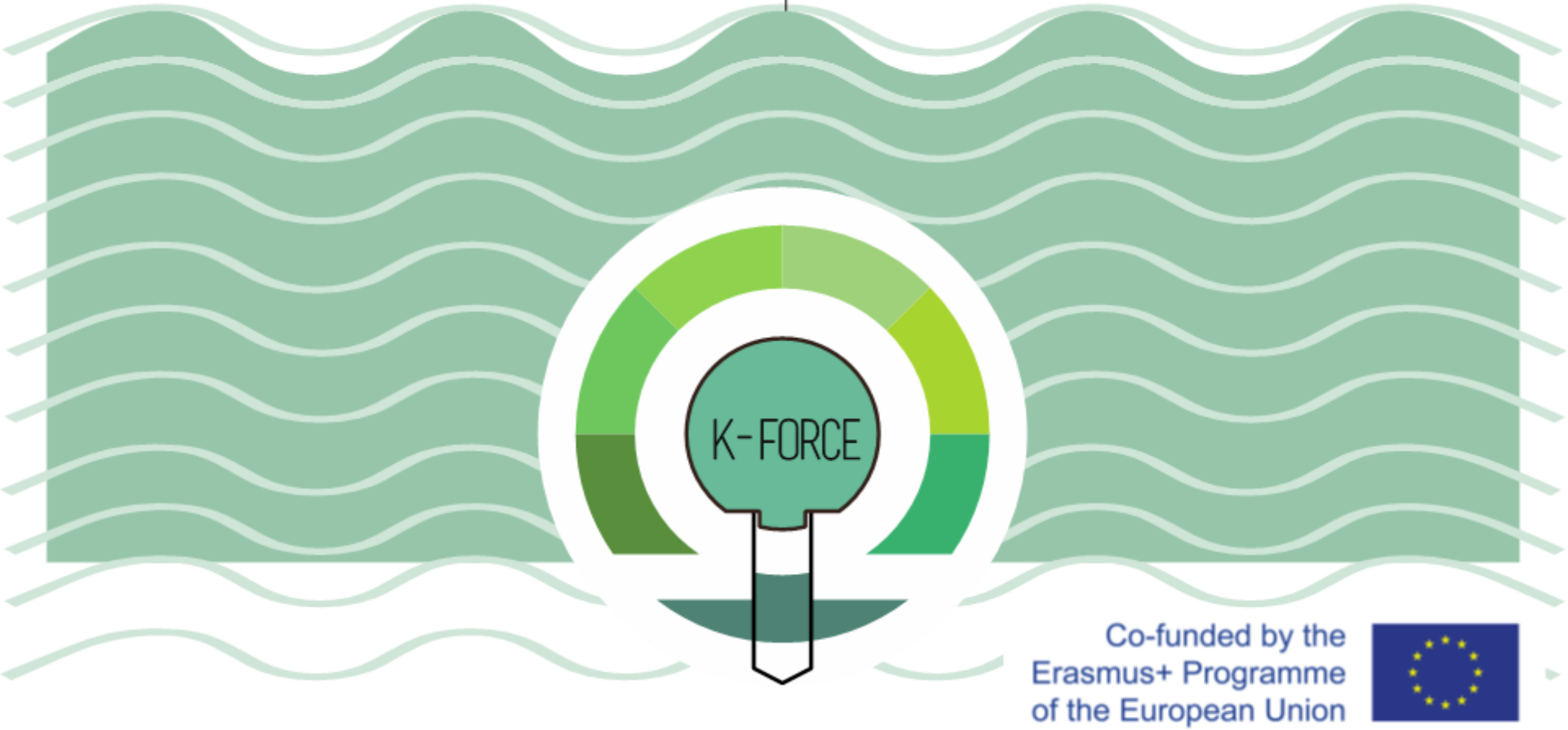
- Initial thermal expansion
- Larger contranction at higher temperatures



Results: transient test

- Test at 60% preloading





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Thank you
for your attention

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