

Project or Master Thesis

Numerical Modelling of bending failure of ice

The objective is to remodel experiments that have been conducted over the past decades, while accounting for the temperature gradient and inclusions such as salt-brine voids.



<https://www.navalprogetti.net/ice/ice-beam-test-campaign/>

Experiments usually cover 3-point bending tests, 4-point bending tests and cantilever beam tests. Each of these tests has particular features and effects on the developing stresses which are to be analysed. Published studies claim that salt-brine voids and the size to test specimens are the most influencing parameters.

The scope of this work is to verify or challenge the existing state of the art and to find a possible explanation for some of the occurring scatter in tests.

The work covers the following tasks:

- Literature review of the state of the art
- Modelling of temperature change within ice over thickness
- Modelling of flexural strength experiments
- Sensitivity studies and analysis of experiments

The goal is to publish the results in a scientific journal or conference and the writing of the draft can be submitted as part of the thesis.

For additional information please contact:
D.Sc. (Tech.) Franz von Bock und Polach (franz.vonbock@tuhh.de)