

## Investigations of the "Second Generation Intact Stability Criteria"

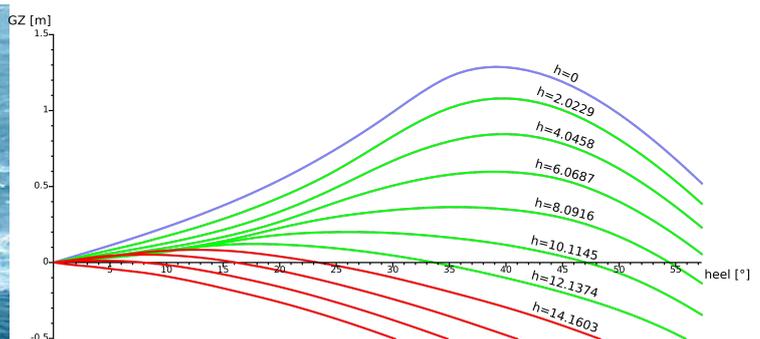
Master's thesis / Student project

In the design process of a ship the conformity with the intact stability regulations must be verified (IS-Code). In the near future, these regulations will be substantially revised in order to be able to evaluate the vulnerability of a ship in a seaway to distinguished situations of danger. These new regulations are known as "Second Generation Intact Stability" (SGISC). Part of these regulations is to check the vulnerability of the ship against pure loss of stability and parametric roll. Both hazard situations are checked in a multi-stage process.

In this work, the vulnerability to "Pure Loss of Stability" and "Parametric Roll" of the freely available "Kriso Container Ship" (KCS) ship model should be checked. An example of the calculation should be documented reproducible. Essential here is a sensitivity analysis of certain parameters occurring in the regulations for an assessment of the results.



(a) Ship in severe sea condition



(b) Dependence of GZ-curve to wave height

**Scope of work** is to carry out an exemplary calculation of the SGISC for "Pure Loss" and "Parametric Roll" using the "KCS". Based on these calculations, the sensitivity to certain parameters and assumptions of the results should be evaluated in coordination with the adviser.

The final working steps are coordinated with the supervisor not later than four weeks after the thesis has started. Therefore a short exposé of the thesis is to submit. This exposé should include, besides an abstract, the table of contents, the planned structure as well as the thematic key points.

The documentation should be as far as possible in English and take into account the recommendations of the chair.

**Adviser:** Dipl.-Ing. Hannes Lindner, Prof. Dr.-Ing. Robert Bronsart