FSI3150 Integrable Non-Linear Systems and Solitons 7.5 credits

Integrabla icke-linjära system och solitoner

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FSI3150 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Basic course in the theory of differential equations.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

This course gives a self-contained introduction to soliton equations. After the course one should have aquired an active knowledge of the course material (i.e. know about and be able to apply and generalize it) and be able to read research papers on the subject.

Course contents

Soliton equations: what are they, where do they arise. What is special about these equations: Symmetries, conservations laws, Lax pairs. KdV equation: physical background, applications, how to solve it. Inverse scattering method. Other soliton equations. Hirota's method.

Course literature

- **Compendium by Edwin Langmann.**
- **P. G. Drazin & R. S. Johnson: Solitons: An Introduction, Cambridge Texts in Applied Mathematics, 1989.**

Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Oral exam, 4.5 credits, grading scale: P, F

Based on recommendation from KTH’s coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Home work and oral examination.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.