

Datenkontrollblatt zur Veranstaltung **Stability of Differential Dynamical Systems and Numerical Methods**

Veranstaltungsgrunddaten

Veranstaltungsnr.		Veranst. SWS	4.0
Veranstaltung	Stability of Differential Dynamical Systems and Numerical Methods	Semester	SS 2013
Kurztext		Erwart. Teil.	
Veranst.-Art	Vorlesung	Max. Teil.	
Belegpflicht		Hyperlink	
Studienjahr			

Veranstaltungstermine, Räume und Personal

Mi	10:00 - 12:00	wöchentl	10.04.2013 - 10.07.2013	MA 541
Fr	10:00 - 12:00	wöchentl	12.04.2013 - 12.07.2013	MA 541

Personen

Volker Mehrmann

Studiengänge

Einordnung Vorlesungsverzeichnis

Zuordnung zu Prüfungen

Einrichtungen

Institut für Mathematik

Hyperlinks

Inhalt

Course objective & topic: This course aims to provide fundamental concepts and techniques for studying the stability of differential equations and differential dynamical systems. It is designed for advanced undergraduate or beginning graduate students in mathematics/applied mathematics. The course is divided into three parts. The first part covers fundamental knowledge for both autonomous and nonautonomous systems of linear differential equations. The second part is concerned with techniques for studying qualitative properties of smooth dynamical systems described by nonlinear systems of differential equations. In the last part, some numerical aspects such as numerical methods for solving differential equations, stability concepts of numerical methods, and numerical methods for the stability analysis will be discussed.

Ausführliche Beschreibung

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Literatur

- L.Ya. Adrianova, Introduction to Linear Systems of Differential Equations, AMS, 1995.
- James Meiss, Differential Dynamical Systems, SIAM, 2007
- J.L. Daleckiĭ and M.G. Krein, Stability of solutions of differential equations in Banach spaces, AMS, 1974
- U. Ascher and L. Petzold, Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations, SIAM, 1998.

Kurzkommentar

Die Vorlesung wird von Prof. Dr. Vu Hoang Linh (Universität Hanoi, Vietnam) gehalten. Seine Sprechstunde findet jeweils am Donnerstag in der Zeit 14:00-15:00 Uhr im Raum MA 446 statt

Grading: The final grade will be given based on homeworks and the final exam (50% of the homework points are required to be admitted to the final exam).