



Im Rahmen der

AG Komplexe Analysis

laden wir zu folgender Vortragsreihe ein:

TOPICS FROM ANALYTIC CONTINUATION AND EXTENSION PROBLEMS IN COMPLEX ANALYSIS

(Prof. Takeo Ohsawa, University of Nagoya, Japan)

Die Vorträge finden statt in der Zeit **06.01.2020 bis 28.01.2020** in den Räumen D.13.11 und G.15.25.

Lecture 1 & 2 (Monday, 06.01., 16:00-18:00, D.13.11)

1. Analytic continuation.

Analytic continuation of holomorphic functions and meromorphic functions will be discussed, based on geometric property of the domain of convergence for power series.

2. Pseudoconvexity.

Basic notions will be recalled such as domains of holomorphy, holomorphically convex domains and smooth pseudoconvex domains.

Lecture 3 & 4 (Tuesday, 07.01., 16:00-18:00, G.15.25)

3. Plurisubharmonic functions.

Definition and basic properties of plurisubharmonic functions will be reviewed. It will be discussed how they arise naturally also on complex manifolds.

4. Analytic sets and singularities of plurisubharmonic functions.

Basic results related to analytic sets and singularities of plurisubharmonic functions are recalled.

Lecture 5 & 6 (Monday, 13.01., 16:00-18:00, D.13.11)

5. Curvature and cohomology on complex manifolds.

Kodaira's vanishing theorem and its variants will be stated after recalling the notions of Chern connection, the curvature form and the positivity of vector bundles.

6. Existence via approximation.

The Levi problem on complex manifolds will be formulated. A solution based on an approximation theorem will be presented.

Lecture 7 & 8 (Tuesday, 14.01., 16:00-18:00, G.15.25)

7. Extension problems of Hartogs type on complex manifolds.
Extension problems for the sections of holomorphic vector bundles will be discussed in terms of $\bar{\partial}$ cohomology groups. "Hartogs type" means that the extension is from the ends of noncompact manifolds.
8. Theorems of Tiba, Lee-Nagata and Takeuchi.
Recent results on solutions of extension problems of Hartogs type will be reviewed.

Lecture 9 & 10 (Monday, 20.01., 16:00-18:00, D.13.11)

9. Extension problems of Oka-Cartan type.
Extension problem from complex analytic sets will be discussed. The sheaf cohomology theory will be recalled in this context.
10. The L^2 method (part 1).
 $\bar{\partial}$ cohomology groups will be analyzed by the L^2 method. Basic theorems on the L^2 estimate and existence theorems will be recalled.

Lecture 11 & 12 (Tuesday, 21.01., 16:00-18:00, G.15.25)

11. The L^2 method (part 2).
Generalizations of Kodaira vanishing theorem by Andreotti and Vesentini will be recalled. By this method, Grauert-Riemenschneider's vanishing theorem will be extended to solve an extension problem of Hartogs type for certain cohomology classes.
12. L^2 vanishing theorems.
The $\bar{\partial}$ cohomology groups with L^2 norm conditions will be analyzed with respect to plurisubharmonic weights.

Lecture 13 & 14 (Monday, 27.01., 16:00-18:00, D.13.11)

13. L^2 extension theorems.
The method of analyzing the L^2 $\bar{\partial}$ cohomology groups will be refined to prove an extension theorem with L^2 growth conditions.
14. Extension and division with L^2 conditions.
A relation between the extension problem of Oka-Cartan type and the classical division problem modelled on arithmetic will be formulated as a theorem with L^2 conditions.

Lecture 15 & 16 (Tuesday, 28.01., 16:00-18:00, G.15.25)

15. Recent development of the L^2 extension theory.
New approaches to the L^2 extension problem after the solution of Suita's conjecture will be reviewed.
16. Application of the L^2 method to rigidity theorems.
The L^2 method will be applied to prove some rigidity theorems for certain analytic families of noncompact complex manifolds.

Alle Interessenten sind herzlich eingeladen!

gez. Prof. N. Shcherbina