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Im Rahmen der

AG Komplexe Analysis

laden wir zu folgender Vortragsreihe ein:

Pluripotential theory and the Monge-Ampère equation

Professor Sławomir Kołodziej
(Jagiellonian University)

Die Vorträge finden statt in der Zeit **04.07.2023 bis 20.07.2023** in den Räumen G.15.25 und G.10.03 (Hörsaal 08) der Bergischen Universität Wuppertal.

Part I: Pluripotential theory in $\mathbb{C}^n$

Lecture 1 & 2 (Tuesday, 04.07., 16:00 s.t. - 18:00, G.10.03)

1. Currents.
   Currents as differential forms with distribution coefficients, basic properties.

2. Positive currents.
   Differentiation of currents. Definition of a positive current. Wedging currents with forms.

Lecture 3 & 4 (Thursday, 06.07., 16:00 s.t. - 18:00, G.15.25)

3. Currents associated to psh functions.
   Bedford- Taylor theory of the Monge-Ampère operator. Definition of $dd^c u$ for bounded, psh functions.

4. The Monge-Ampère operator.
   Definition of $(dd^c u)^n$. Chern-Levine-Nirenberg inequalities.

Lecture 5 & 6 (Tuesday, 11.07., 16:00 s.t. - 18:00, G.10.03)

5. Bedford-Taylor capacity.
   Definition of the capacity. Continuity of the M-A operator with respect to monotone sequences.

6. The Dirichlet problem.
   Comparison principle. The Dirichlet problem - results.

Part II: Pluripotential theory on compact Kähler manifolds

Lecture 7 & 8 (Thursday, 13.07., 16:00 s.t. - 18:00, G.15.25)

7. Compact Kähler manifolds.
   Complex manifolds. Kähler metrics. Ricci curvature.

8. Calabi Conjecture.
   Calabi Conjecture. Idea of Yau's proof.

Lecture 9 & 10 (Tuesday, 18.07., 16:00 s.t. - 18:00, G.10.03)

9. Weak (pluripotential) solutions.
   Pluripotential L^∞ estimates. Weak solutions of the Monge-Ampère equation.

10. Kähler-Einstein metrics.
    First Chern class. Kähler-Einstein metrics. Aubin, Yau results.

Lecture 11 & 12 (Thursday, 20.07., 16:00 s.t. - 18:00, G.15.25)

11. Introduction to the Kähler-Ricci flow.
    Maximum principle for the heat equation. The Kähler-Ricci flow.

12. Evolution of curvatures and the trace under the Kähler-Ricci flow.
    The equations for the evolution of scalar curvature, trace of the metric and other geometric quantities.

Alle Interessenten sind herzlich eingeladen!

gez. Prof. N. Shcherbina