



GLOBAL ANALYSIS SEMINAR

Three theorems in Several Complex Variables

I. Hartogs' theorem on separate analyticity

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Abstract: This is the first of three lectures on themes in several complex variables. The theorem to be discussed reads as follows:

Let Ω be an open set in \mathbb{C}^n , let $f : \Omega \rightarrow \mathbb{C}$ be such that whenever $z^0 = (z_1^0, \dots, z_n^0) \in \Omega$, the each of the the function of a single complex variable

$$\zeta \mapsto f(z_1^0, \dots, z_{j-1}^0, \zeta, z_{j+1}^0, \dots, z_n^0), \quad j = 1, \dots, n,$$

is differentiable in the complex sense. Then f , as a function of $2n$ real variables, is infinitely differentiable.

The analogous statement in the case of functions of several real variables is false.

The topics for the other two lectures are:

- II. Hartogs' phenomenon.
- III. Solving the $\bar{\partial}$ equation.

These three talks will illustrate how different the problems are between analytic functions of one complex variable and of several complex variables.

All three talks are intended for graduate students at any level.

Wednesday September 15, 1–2:20pm

Wachman Hall 617

<http://math.temple.edu/events/seminars/manifolds/>