

ANALYSIS SEMINAR

UNIFORM APPROXIMATION UNDER CONSTRAINTS
FOR CONTINUOUS VECTOR-VALUED FUNCTIONS

VLAD TIMOFTE
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WEDNESDAY, FEBRUARY 16, 2005 IN ROOM 331 AT 3:00 PM

*Abstract: The talk will discuss approximations with constraints on the range and on the support. For any $\varepsilon > 0$, the approximant u_ε of u (continuous maps defined on a topological space T) is required to take locally (on neighborhoods) values into **finite dimensional subspaces**, and to satisfy the restrictions*

$$\sup_{t \in T} \|u(t) - u_\varepsilon(t)\| < \varepsilon, \quad u_\varepsilon(T) \subset \text{co}(u(T)), \quad \text{supp } u_\varepsilon \subset \text{int}(\text{supp } u).$$

*The result obtained has **very distinct applications**: a generalization of the Tietze-Dugundji extension theorem, a new proof of the fixed point theorem of Schauder-Tihonov, and a density result with respect to the inductive limit topology.*