



- > MainPage
- > About College
- > Files
- > Researches
- > Courses
- > Favorite Links
- > Our Contacts

Visits Of this Page:9



Research Details :

Research Title	: <u>نظريات من نوع ستون - ويرسترس لفراغات دالة متجه القيمة اللأرخميديية</u>
Descriptipn	: In this thesis, we deal with Stone-Weierstrass type approximation theorems for continuous vector-valued functions in both the archimedean and non-archimedean settings. This theorem, first established by M.H. Stone in 1937 for the function spaces $C(X, \mathbb{R})$ and $C(X, \mathbb{C})$, is a generalization of the classical Weierstrass approximation theorem of 1885 for the function space $C([0, 1], \mathbb{R})$. The first results in the non-archimedean area were proved by Dieudonne in 1944 and later by Kaplansky in 1949. We present the extensions of the Dieudonne-Kaplansky theorems to the function space $C(X, E)$ obtained by Prolla (1977, 1982) and Prolla-Verdoodt (1997) under the uniform, compact-open and strict topologies, where X is a 0-dimensional topological space and E a topological vector space which is either non-archimedean or is over some non-archimedean valued field \mathbb{F} . The approximation problem consists in finding the conditions on a $C(X)$ -submodule \mathcal{A} of $C(X, E)$, so that \mathcal{A} is dense in $C(X, E)$ in the above mentioned topologies. The key argument in the proofs is to use suitable lemmas on unity partition of unity. The last chapter contains some new results for the strict topology, where, in addition to the Stone-Weierstrass theorem, we give a characterization of maximal closed submodules and ideals in $C_b(X, E)$
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