REPRESENTATION THEOREM FOR OPERATORS ON FREE BANACH SPACE OF COUNTABLE TYPE

JOSE AGUAYO,

ABSTRACT. This talk will be centered in commutative Banach subalgebras of the algebra of bounded linear operators defined on a Free Banach spaces of countable type. The main goal of this work will be to formulate a representation theorem for these operators through integrals defined by spectral measures type. In order to get this objective, we will show that, under special conditions, each one of these algebras is isometrically isomorphic to some space of continuous functions defined over a compact set. Then, we will identify such compact developing the Gelfand space theory in the non-archimedean setting. This fact will allow us to define a measure which is known as spectral measure. As a second goal, we will formulate a matrix representation theorem for this class of operators whose entries of these matrices will be integrals coming from scalar measures.

REFERENCES

[1] J. Aguayo, M. Nova and K. Shamseddine, *Inner product on B*-algebras of operators on a free Banach space over the Levi-Civita field*, Indag. Math. (N.S.) **26** (2015), no. 1, 191-205.

[2] J. Aguayo and M. Nova, *Compact and Self-adjoint operators on Free Banach Spaces of countable type*, Advances in non-Archimedean analysis, 1-17, Contemp. Math., **665**, Amer. Math. Soc., Providence, RI, 2016.

[3] V. Berkovich, *Spectral Theory and analytic geometry over non-archimedean fields*, Mathematical Surveys and Monograph, **33** AMS (1990).

[4] B. Diarra, B., *Bounded linear operators on ultrametric Hilbert spaces*, Afr. Diaspora J. Math., **8** (2009), no. 2, 173-181.

[5] A. K. Katsaras, *On p-adic vector measure space*, Journal of Mathematical Analysis and Applications, **365** (2010), no. 1, 342-357.

[6] Khochubei, A., Non-Archimedean normal operator, Journal of Mathematical Physics, 51, http://dx.doi.org/10.1063/1.3293980 (2010).

[7] L. Narici and E. Beckenstein, *A non-Archimedean Inner Product*, Contemp. Math., **384**, 187-202, Amer. Math. Soc., 2005.

[8] A. van Rooij, *Non-Archimedean Functional Analysis*, Marcel Dekker, New York, 1978.

[9] M. Vishik, *Non-Archimedean spectral Theory*, J. Soviet Math., **30** (1985), 2513-2554.

DEPARTAMENTO DE MATEMÁTICA, FACULTAD DE CIENCIAS FÍSICAS Y MATEMÁTICAS, UNIVERSIDAD DE CONCEPCIÓN, CASILLA 160-C, CONCEPCIÓN, CHILE.
E-mail address: jaguayo@udec.cl; jacqojeda@udec.cl