Abstract

In the first part we considered for a locally convex vector space (l.c.v.s.) E and an absolutely convex neighborhood V of zero, a bounded subset B of E is said to be *V-dentable* (respectively, *V-f-dentable*) if for any $\epsilon > 0$ there exists an $x \in B$ so that

$$x \notin \overline{co}(B \setminus (x + \epsilon V))$$

(respectively, so that

$$x \notin co(B \setminus (x + \epsilon V))).$$

Here, "$\overline{co}$" denotes the closure in E of the convex hull of a set.

We present a theorem which says that for a wide class of bounded subsets B of locally convex vector spaces the following is true:

Every subset of B is V-dentable if and only if every subset of B is V-f-dentable.

As a consequence (in the particular case where B is complete convex bounded metrizable subset of a l.c.v.s.), we obtain a positive solution to a 1978-hypothesis of the well known American mathematician Elias Saab (see [9] p. 290 in "On the Radon-Nikodym property in a class of locally convex spaces").

In the second part we gave notion of operator dentability in (l.c.v.s) i.e. an operator $T : E \to F$, linear and continuous, (in l.c.v.s.): T is said to be RN-operator and denoted as $T \in RN(E, F)$ if for every complete, absolutely convex bounded $B \subseteq E$ and any absolutely convex neighborhood $V \subseteq F$ of zero then the natural operator $\Phi_V \circ T \circ \Psi_B : E_B \to E \to F \to F_V$ is RN-operator between Banach spaces E_B and F_V (where the notion of RN-operator between Banach spaces is given in [8]). We proved if $I : E \to E$ is RN-operator, where E is Fréchet space, and V is absolutely convex neighborhood of 0 then each bounded subset B of E is V-dentable. This is same as proving if E has Radon Nikodým Property then each bounded subset of E is V-dentable.