1135-47-349 **Asuman Güven Aksoy*** (aaksoy@cmc.edu), Dept of Mathematics, 850 Columbia Avenue, Claremont, CA 91711. *Deviation of elements of a Fréchet space from a system of subspaces.*

One of the notable theorems used in the constructive theory of functions is Bernstein Lethargy Theorem (BLT). In this talk, we consider Bernstein Lethargy Theorem (BLT) in the context of Fréchet spaces. Let X be an infinite-dimensional Fréchet space and let $\mathcal{V} = \{V_n\}$ be a nested sequence of subspaces of X such that $\overline{V_n} \subseteq V_{n+1}$ for any $n \in \mathbb{N}$. Let e_n be a decreasing sequence of positive numbers tending to 0. Under an additional natural condition on $\sup\{\mathrm{dist}(x, V_n)\}$, we prove that there exists $x \in X$ and $n_o \in \mathbb{N}$ such that

$$\frac{e_n}{3} \leq \mathrm{dist}(x, V_n) \leq 3e_n,$$

for any $n \geq n_o$. By using the above theorem, we prove both Shapiro's and and Tyuremskikh's theorems for Fréchet spaces. We also identify some classical Banach spaces that form a Bernstein pair. (Received August 27, 2017)