Diametral dimension(s) and prominent bounded sets

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The classical diametral dimension (Bessaga, Mityagin, Pełczyński, Rolewicz), denoted by Δ, is a topological invariant which can be used to characterize Schwartz and nuclear locally convex spaces. Mityagin also introduced a variant of this diametral dimension, denoted by Δ_b, using bounded sets in its definition, contrary to Δ.

In this talk, we present some conditions assuring the equality of these two diametral dimensions for Fréchet spaces. Among these conditions, there is the notion of existence of prominent bounded sets, due to Terzioğlu. In fact, it appears that the existence of prominent sets is implied by the property $(\overline{\Omega})$ of Vogt and Wagner. Finally, we describe a construction which gives Schwartz and nuclear non-Fréchet spaces E verifying $\Delta_b(E) \neq \Delta(E)$.