

## THE SYMMETRIC STRONG DIAMETER 2 PROPERTY IN BANACH SPACES

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The diameter 2 property (D2P) means that every non-void relatively weak open set of the unit ball  $B_X$  has diameter 2. In particular, every slice then has diameter 2. A property that implies the D2P (and much more) is the following:  *$X$  is said to enjoy the symmetric strong diameter 2 property if whenever  $(S_i(x_i^*, \varepsilon_i))_{i=1}^n$  are  $n$  slices of  $B_X$  and  $\varepsilon > 0$ , there exist  $x_i \in S_i$  and  $\varphi \in B_X$  such that  $x_i \pm \varphi \in S_i, i = 1, 2, \dots, n$ , and  $\|\varphi\| > 1 - \varepsilon$ .* Let us call this property the symmetric strong diameter 2 property (SSD2P)—a motivation for that particular name will be given during the talk.

We will give examples of classes of Banach spaces having the SSD2P, discuss (lack of) stability when forming  $p$ -sums, look at possible passage of SSD2P to subspaces, see that Lindenstrauss spaces have the SSD2P, and finally, ask some natural questions arising.

The talk is based on a preliminary joint work and discussions with Rainis Haller, Johann Langemets and Märt Põldvere, University of Tartu.

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