

1019-52-141      **Maria Angeles Alfonseca\*** (`maria.alfonseca@ndsu.edu`), 300 Minard Hall, North Dakota State University, Fargo, ND 58105, and **Dmitry Ryabogin** and **Artem Zvavitch**. *Geometric properties of intersection bodies*. Preliminary report.

Intersection bodies are convex bodies whose radial function is a positive definite distribution. They were introduced in 1988 by Lutwak [2] in connection to the Busseman-Petty problem.

In general, not much is known about the geometry of intersection bodies, even of those that are polytopes.

In 1998, Koldobsky [1] introduced a necessary condition for a convex body to be an intersection body in terms of the second derivative of its norm. This result allowed him to prove that the unit ball of the  $q$ -sum of two spaces  $X$  and  $Y$  is not an intersection body.

In our work we use the techniques of [1] to prove that, in dimension 7 or more, an intersection body cannot be a direct sum of two convex bodies. We also study conditions for bodies of revolution with a face to be intersection bodies.

## References

- [1] Koldobsky, A., Second derivative test for intersection bodies, *Adv. Math.* **136** (1998) no. 1, 15–25.
- [2] Lutwak, E., Intersection bodies and dual mixed volumes, *Adv. Math.* **71** (1988), 232–261.

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