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"Daugavet property, Lipschitz-free space and tensor product"

Recall that a Banach space X has the *Daugavet property* if, given any rank-one linear and continuous operator $T : X \longrightarrow X$ it follows that

$$\|T + \mathrm{I}\| = 1 + \|T\|,$$

where $\mathrm{I} : X \longrightarrow X$ stands for the identity operator.

In the context of the Lipschitz free space over a complete metric space, it is known that $\mathcal{F}(M)$ has the Daugavet property if, and only if, the metric space M is *length*, i.e., if for every pair of distinct points $x, y \in M$ then $d(x, y)$ equals the inf. of the length of all the rectifiable curves joininig x and y [1].

In this talk we will analyse the question when $\mathcal{F}(M) \widehat{\otimes}_\pi X$ has the Daugavet property. The results of this talk are part of the preprint [2] in collaboration with R. Medina.

References

[1] L. García-Lirola, A. Procházka and A. Rueda Zoca, *A characterisation of the Daugavet property in spaces of Lipschitz functions*, J. Math. Anal. Appl. **464** (2018), 473–492.

[2] R. Medina and A. Rueda Zoca, *Daugavet property in projective tensor products of Lipschitz-free spaces*, preprint. Available at ArXiV.org with reference arXiv:2305.05956