

# On the weak topology in Lipschitz free spaces

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For a metric space  $(M, d)$ , the Lipschitz free space (also known as Arens–Eells space or transportation cost space)  $\mathcal{F}(M)$  is a Banach space which is built around  $M$  in such a way that  $M$  is isometric to a (linearly dense) subset  $\delta(M)$  of  $\mathcal{F}(M)$ , and Lipschitz maps from  $\delta(M)$  into any Banach space  $X$  uniquely extend to bounded linear operators from  $\mathcal{F}(M)$  into  $X$ . The study of free spaces is at the intersection of functional analysis, metric geometry, measure theory, transportation theory, etc. A recent program consists in trying to characterise (linear) properties of  $\mathcal{F}(M)$  in terms of (metric) properties of  $M$ . In this talk, we will present a few results concerning the weak topology in Lipschitz free spaces.