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Some Geometric Properties of the Cesàro Function Spaces

Some geometric properties of the Cesàro function spaces $C_{p,w}$, $1 \leq p < \infty$, induced by an arbitrary positive weight function w on an interval $(0, l)$ where $0 < l \leq \infty$ are studied in this paper. It is shown that all non-empty relatively weakly open sets in the unit ball of $C_{p,w}$ have diameter 2. Also $C_{p,w}$, $1 < p < \infty$ is strictly convex but no point of its unit ball is strongly extreme. Moreover, some connections between uniformly non-square points and various geometric properties in general Banach spaces are presented.

Keywords: Cesaro function space, diameter 2 property, weak neighborhoods, uniformly non-square points.

MSC: 46E30, 46B20, 46B42