

balls in ultrametric spaces are clopen subsets

 ${\bf Canonical\ name} \quad {\bf Balls In Ultrametric Spaces Are Clopen Subsets}$

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Author MFH (21412) Entry type Example Classification msc 54D05 In an ultrametric space, both open and closed balls are clopen subsets.

It is indeed straightforward (exercise!) to show that the set of all open balls of radius r, centered in any of the points of a closed ball of radius r, forms a partition of the latter.

Thus, in particular, any point of a closed ball is an interior point, and the same holds for the complement of an open ball.