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Aksoy, A. G. (1-CMKC); **Khamsi, M. A.** (1-TXEP)
Fixed points of uniformly Lipschitzian mappings in metric trees. (English summary)
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A metric space (M,d) is called a metric tree if for every pair of distinct points $x,y\in M$ there is a unique arc between x and y and this arc is isometric to an interval in $\mathbb{R}$. A mapping $T\colon M\to M$ is said to be eventually uniformly Lipschitzian if $\sigma(T)=\limsup_{n\to\infty}\mathrm{Lip}(T^n)<\infty$, where $\mathrm{Lip}(T^n)$ is the Lipschitz constant for the n-th iteration of T.

The main theorem (Theorem 3.3) of the paper under review may be stated as follows: If M is a non-empty complete metric tree, and $T\colon M\to M$ is an eventually uniformly Lipschitzian mapping with bounded orbits and $\sigma(T)<2$, then T has a fixed point.

As a corollary the authors obtain the following stability result for the fixed point property (Theorem 3.4): Let (M,d) be a non-empty complete metric tree, and d^* an equivalent distance such that $d\le d^*\le bd$, where $b<2$. If a mapping $T\colon M\to M$ is non-expansive with respect to d^* and has bounded orbits, then T has a fixed point.

Reviewed by *Jerzy Krzempek*