On the classification of one dimensional continua that admit expansive homeomorphisms

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A homeomorphism $h : X \longrightarrow X$ is *expansive* if there exists a $c > 0$ such that for any distinct $x, y \in X$, there exists $n \in \mathbb{Z}$ such that $\mathrm{d}(h^n(x), h^n(y)) > c$. This talk will begin with an overview of the results and open questions on expansive homeomorphisms on one-dimensional continua. Then I will show that if $h : X \longrightarrow X$ is an expansive homeomorphism of a finitely cyclic continuum X, then there exists a periodic indecomposable subcontinuum Y and a $k \in \mathbb{Z}$ such that $h^k|_Y$ is positively continuum-wise fully expansive on Y. A map $f : X \longrightarrow X$ is *positively continuum-wise fully expansive* if for every non-degenerate subcontinuum $A \subset X$, $\lim_{n\to\infty} \mathrm{d}_H(f^n(A), X) = 0$ where d_H is Hausdorff distance. Then I will discuss how the previous result relates to classifying continua that admit expansive homeomorphisms.

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