

Return times and synchronous recurrence

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Let (X, f) be a discrete dynamical system and let \mathcal{F} be a hereditary upward set of subsets of \mathbb{N} . A point x is \mathcal{F} -recurrent, if for any open neighborhood U of x , return times of x to U are in \mathcal{F} , that is $\{n : f^n(x) \in U\} \in \mathcal{F}$. A point x is \mathcal{F} -PR if for any \mathcal{F} -recurrent point y in any dynamical system (X, g) the pair (x, y) is recurrent for $(X \times Y, f \times g)$. In this talk we will present recent results and open problems related to the \mathcal{F} -PR property.