15th Annual Workshop on Topology and Dynamical Systems
Nipissing University, May 21–25, 2018
http://topology.nipissingu.ca/workshop2018/

Decomposition towers and their forcing

Alexander Blokh (University of Alabama at Birmingham)
ablokh@math.uab.edu

Joint with: Michal Misiurewicz (Indiana University-Purdue University Indianapolis)

Abstract: A cyclic permutation π of the set $\mathbf{N} = \{1, \dots, n\}$ has a *block structure* if $\mathbf{N}$ can be divided into non-trivial consecutive blocks permuted by π. This can be done in a few ways. Define the *decomposition tower*, a sequence of periods of each next block in the previous one in the maximal string of block structures getting finer and finer. Set

$$4 \gg 6 \gg 3 \gg \cdots \gg 4n \gg 4n+2 \gg 2n+1 \gg \cdots \gg 2 \gg 1,$$

define the lexicographic extension of $\gg$ onto towers, and denote it $\gg$ too. We prove that if $\mathcal{N} \gg \mathcal{M}$ and a continuous interval map f has a cycle with decomposition tower $\mathcal{N}$ then f must have a cycle with decomposition tower $\mathcal{M}$.