

Dynamical Systems and Their Applications
June 22 - 26, 2015, Kyiv, Ukraine

SOLVING FOR THE FIXED POINTS OF 3-CYCLE IN THE
LOGISTIC MAP AND TOWARD REALIZING CHAOS BY THE
THEOREMS OF SHARCOVSKII AND LI-YORKE

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Sharkovskii proved that, for continuous maps on intervals, the existence of 3-cycle implies the existence of all others. Li and Yorke proved that 3-cycle implies chaos. To establish a domain of uncountable cycles in the logistic map and to understand chaos in it, the fixed points of 3-cycle are obtained analytically by solving a sextic equation. At one parametric value, a fixed-point spectrum, resulted from the Sharkovskii limit, helps to realize chaos in the sense of Li and Yorke.