Orbit diagram of the Logistic map

The orbit diagram is also called (incorrectly) the Feigenbaum diagram, fig tree diagram or simply bifurcation diagram (bifurcation diagram that shows only stable fixed points and period-p points (period-p orbits)).

The Logistic map is given by

\[ x_{n+1} = rx_n(1 - x_n), \quad x_0 \in [0, 1], \quad r \in [0, 4], \quad n = 1, 2, 3, \ldots, \]  

where \( r \) is the control parameter. Figure 1 shows the orbit diagram of map (1).