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On Second-Order Rational Difference Equations

In this talk we present a summary of recent and new results on the global character of solutions of the second-order rational difference equation

$$x_{n+1} = \frac{\alpha + \beta x_n + \gamma x_{n-1}}{A + B x_n + C x_{n-1}}, \quad n = 0, 1, \dots$$

with nonnegative parameters $\alpha, \beta, \gamma, A, B, C$ and with arbitrary nonnegative initial conditions x_{-1}, x_0 such that the denominator is always positive. Some extensions to higher-order rational difference equations will also be presented.