Asymptotic behavior and oscillation of fourth-order difference equations

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We present some our recent results on asymptotic and oscillatory properties of solutions for the nonlinear difference equations of the fourth order

$$\Delta \left(a_n \left(\Delta b_n \left(\Delta c_n \left(\Delta x_n \right)^{\gamma} \right)^{\beta} \right)^{\alpha} \right) + d_n f(x_{n+\tau}) = 0, \quad (n \in \mathbb{N})$$

where α, β, γ are the ratios of odd positive integers, $\{a_n\}, \{b_n\}, \{c_n\}, \{d_n\}$ are positive real sequences defined for $n \in \mathbb{N}$ and $\tau \in \mathbb{Z}$ is a deviating argument.
The role of the deviating argument to oscillation will be given, too. This is a joint work with Jana Krejčová.