

OSCILLATION CRITERIA FOR NEUTRAL PARTIAL FUNCTIONAL DIFFERENTIAL EQUATIONS

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Abstract. Some new oscillation criteria are established for second order neutral partial functional differential equations of the form

$$\begin{aligned} & \frac{\partial}{\partial t} \left[p(t) \frac{\partial}{\partial t} \left(u(x, t) + \sum_{i=1}^l \lambda_i(t) u(x, t - \tau_i) \right) \right] \\ & = a(t) \Delta u(x, t) + \sum_{k=1}^s a_k(t) \Delta u(x, t - \rho_k(t)) - q(x, t) u(x, t) \\ & \quad - \sum_{j=1}^m q_j(x, t) f_j(u(x, t - \sigma_j)), (x, t) \in \Omega \times [0, \infty) \equiv G, \end{aligned}$$

by integral average, where Ω is a bounded domain in \mathbb{R}^N with a piecewise smooth boundary $\partial\Omega$ and Δ is the Laplacian in the Euclidean N -space \mathbb{R}^N .

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