1164-34-109 **Elena Braverman***, Department of Mathematics & Statistics, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada, and **Leonid Berezansky**, Dept. of Math., Ben-Gurion University of the Negev, 84105 Beer-Sheva, Israel. *On asymptotic properties of nonlinear and neutral types of delay equations and systems.*

In the first part of our talk, we observe that introduction of two variable delays can change properties of the Mackey-Glass equation

$$\dot{x}(t) = r(t)\left[\frac{ax(h(t))}{1+x^{\nu}(g(t))} - x(t)\right], \quad a>1,\ \nu>0.$$

There may exist non-oscillatory about the positive equilibrium unstable solutions, the effect of possible absolute stability disappears. We obtain sufficient conditions for local and global stability of the positive equilibrium and illustrate the stability tests, as well as new effects of two different delays, with examples.

In the second part of the talk, we analyze exponential stability and solution estimates for a delay system

$$\dot{x}(t) - A(t)\dot{x}(g(t)) = \sum_{k=1}^{m} B_k(t)x(h_k(t))$$

of a neutral type, where A and B_k are $n \times n$ bounded matrix functions, and g, h_k are delayed arguments. Stability tests are applicable to a wide class of linear neutral systems with time-varying coefficients and delays. In addition, explicit exponential estimates for solutions of both homogeneous and non-homogeneous neutral systems are obtained for the first time. These inequalities are not just asymptotic estimates, they are valid on every finite segment and evaluate both short- and long-term behaviour of solutions. (Received January 10, 2021)