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On stability of equations with several delays and Mackey Glass equation with variable coefficients

In the first part of the talk, some new results on stability of linear delay equations with several delays and variable delays and coefficients are presented. These results can be applied to the local stability of nonlinear equations. As an example, we consider the Mackey–Glass equation with variable coefficients and a nonconstant delay $N' = \frac{r(t)N(g(t))}{1+(N(g(t)))^\gamma} - b(t)N(t)$ which models white blood cell production. Other qualitative properties of this equation, such as boundedness of solutions, persistence and oscillation, are also discussed. It is also demonstrated that with two delays the equation does not keep the persistence property.