

On an approach to the theory of some nonlinear integral equations

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Abstract: We are going to discuss some important classes of nonlinear integral equations such as integral equations of Volterra-Chandrasekhar type, quadratic integral equations of fractional orders, nonlinear integral equations of Volterra-Wiener-Hopf type and nonlinear integral equations of Erdélyi-Kober type. Those integral equations play very significant role in applications to the description of numerous real world events. Our aim is to show that the mentioned integral equations can be treated from the view point of nonlinear Volterra-Stieltjes integral equations. The Riemann-Stieltjes integral appeared in those integral equations is generated by a function of two variables. The choice of a suitable generating function enables us to obtain various kinds of integral equations. The results, which will be presented in our talk, come from the papers [2-4] and the book [1].

Keywords: integral equation, integral equation of fractional order, Wiener-Hopf integral equation, Erdélyi-Kober integral equation, Riemann-Stieltjes integral, function of bounded variation.

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