Abstract

Fractional integrals and derivatives in a sense generalize common integrals and derivatives. They can be used to define the integral $\int_a^b f(x)\,\mathrm{d}g(x)$ on a bounded interval for large set of integrands f and integrators g, in general, of unbounded variation. This concept may be utilized in theory of stochastic differential equations, where the standard random processes are not of bounded variation, yet they admit a version with Hölder continuous sample paths. This thesis deals with a particular type of multidimensional differential equations, where subject to certain conditions an existence of a unique solution may be proved. It presents the proof of continuous dependence of solutions on initial condition. Furthermore, this thesis analyzes the situation in which coefficients in equations continuously depend on a parameter from certain metric space. For such a situation, the thesis introduces a proof of continuous dependence of solutions on these parameters.