

Functional analysis and convexity in the study of differential systems with integral boundary conditions

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First and second order systems of ordinary differential equations with integral boundary conditions involving Riemann-Stieltjes integrals are reduced to fixed point problems in Banach spaces. Geometric conditions on some convex sets on the right-hand member of the systems are used to obtain sufficient conditions for the existence of a solution. The sharpness of those conditions is analyzed. This summarizes joint works with Katarzyna Szymańska-Dębowska.