DALHOUSIE MATHEMATICS COLLOQUIUM

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Existence results for impulsive boundary value problems via variational methods and critical point theory

The theory and applications of impulsive functional differential equations are emerging as an important area of investigation, since it is far richer than the corresponding theory of non-impulsive functional differential equations. Various population models, which are characterized by the fact that per sudden changing of their state and process under depends on their prehistory at each moment of time, can be expressed by impulsive differential equations with deviating argument, as population dynamics, chemotherapy, ecology and epidemic, etc. In the last decades, impulsive differential equations have become more important in some mathematical models of real processes and phenomena studied in spacecraft control, impact mechanics, industrial robotics, physics, chemistry, chemical engineering, biotechnology, economics and inspection process in operations research. It is now recognized that the theory of impulsive differential equations is a natural framework for a mathematical modelling of many natural phenomena. In this talk we are going to discuss the existence of solutions for boundary value problem with impulsive effects via variational methods and critical point theory. We present some examples to demonstrate the application of our main results.