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## **Solvability of Infinite System of a Class of Boundary Value Problems**

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**Abstract:** In this talk, we present a brief survey of theory and applications of measures of noncompactness. The classical measures of noncompactness are discussed and their properties are compared. The approaches for constructing measure of noncompactness in a general metric or linear space are described, along with the classical results for existence of fixed point for condensing operators. Also several generalization of classical results are mentioned and their applications in various problems of analysis such as linear equation, differential equations, integral equations and common solutions of equations are discussed. Recently the measures of noncompactness are applied in solving infinite system of differential equations and integral equations in sequence spaces [1, 2]. We consider here the solvability of an infinite system of second order differential equations [3].

### **References:**

- 1] J. Banas and M. Mursaleen, Sequence Spaces and Measures of Noncompactness with Applications to Differential and Integral Equations, Springer, 2014.
- [2] A. Das, B. Hazarika, R. Arab and M. Mursaleen, Solvability of the infinite system of integral equations in two variables in the sequence spaces  $c_0$  and  $\ell_1$ , Jour. Comput. Appl. Math., 326 (2017) 183-192.
- [3] M. Mursaleen and S.M.H. Rizvi, Solvability of infinite system of second order differential equations in  $c_0$  and  $\ell_1$  by Meir-Keeler condensing operator, Proc. Amer. Math. Soc., 144(10) (2016) 4279-4289.