# 44th Summer Symposium in Real Analysis

## Participant

Family name : Bugajewska
First name : Daria
Institution : Adam Mickiewicz Univeristy, Poznań
Email : dbw@amu.edu.pl

## Title of the talk

Functions of Bounded Variation in Nonlinear Problems

## Abstract

Functions of bounded variation defined by Jordan in 1881, are mathematical objects which have focussed attention e.g. in real analysis, functional analysis, measure theory, integration theory and operator theory. They have found numerous applications in various branches of science. Since solutions to many differential and integral equations which describe concrete physical phenomena are often functions of bounded variation in the sense of Jordan, the Banach space of such functions forms a natural place to examine various nonlinear problems.

In this talk we will present results concerning solvability of nonlinear Hammerstein integral equations in a special cone of continuous functions and applications of these abstract results to the existence of nontrivial solutions of periodic boundary value problems. Moreover, the solvability of perturbed Hammerstein integral equations in the space of continuous functions of bounded variation in the sense of Jordan will be presented along with its applications to examining the existence of nontrivial solutions of BVP, subject to integral boundary conditions of Riemann-–Stieltjes type.