



PREFACE: NONLINEAR FUNCTIONAL ANALYSIS AND PARTIAL DIFFERENTIAL EQUATIONS

SERGIU AIZICOVICI, SIMEON REICH, AND ALEXANDER J. ZASLAVSKI

This special issue on Nonlinear Functional Analysis and Partial Differential Equations is dedicated to the memory of Professor Felix E. Browder.

Felix Earl Browder (1927–2016) was an outstanding American mathematician, well-known for his work in nonlinear functional analysis and partial differential equations. He was a child prodigy; he entered MIT at the age of sixteen in 1944 and graduated in 1946 with his first degree in mathematics. At MIT he achieved the rank of a Putnam Fellow in the William Lowell Putnam Mathematical Competition. In 1948 (at the age of twenty) he received his doctorate from Princeton University. Professor Browder held positions at MIT, Boston University, Brandeis and Yale, and headed the Mathematics Department at the University of Chicago from 1971 to 1976 and again from 1979 to 1985. He was elected to the United States National Academy of Sciences in 1973. In 1986 Professor Browder became the first vice president for research at Rutgers University and in 1999 he was awarded the National Medal of Science by President William Clinton. In the period 1999–2000 Professor Browder served as the President of the American Mathematical Society. He published more than 200 research papers and was the advisor of fifteen PhD students.

In this special issue we present papers authored by a select group of well-recognized experts in the areas of nonlinear functional analysis and partial differential equations. The issue contains fifteen papers contributed by researchers from Canada, France, Germany, Greece, India, Ireland, Israel, Italy, Japan, Portugal, Romania, Russia, Taiwan and the USA.

These papers cover a wide spectrum of significant problems and topics of current research interest in nonlinear analysis and partial differential equations, including a multiplicity theorem for noncoercive $(p, 2)$ -equations, stochastic semilinear parabolic equations with measures as initial data, circumcenter mappings induced by nonexpansive operators, existence and non-existence results for a class of semilinear nonlocal operators with exterior condition, persistence of pulses for some reaction-diffusion equations, optimal strategies for achieving immune balance in a mathematical model of allergy treatment, the Browder fixed point theorem and its application, maps with weakly sequentially closed graphs satisfying compactness conditions on countable sets, an alternative theorem for gradient systems, a multi-dimensional approach to traffic analysis, a strong convergence theorem under a new shrinking projection method for two demigeneralized mappings in a Banach space, structural compactness and stability of doubly nonlinear flows, the existence of stationary solutions for some systems of non-Fredholm integro-differential equations with the bi-Laplacian, nonlinear spectral resolution, and a nonintersection property for solutions of continuous time optimal control problems.

Therefore we feel that this special issue will be of great importance for many mathematicians and scientists, who are interested in recent developments in nonlinear functional analysis and partial differential equations, as well as in their numerous applications.

S. AIZICOVICI

Department of Mathematics, Ohio University, Athens, OH 45701, USA

E-mail address: `aizicovs@ohio.edu`

S. REICH

Department of Mathematics, The Technion – Israel Institute of Technology, 32000 Haifa, Israel

E-mail address: `sreich@technion.ac.il`

A. J. ZASLAVSKI

Department of Mathematics, The Technion – Israel Institute of Technology, 32000 Haifa, Israel

E-mail address: `ajzasl@technion.ac.il`