Selected papers

Celebrating the Retirement of Professor Paul W. Eloe

Guest Editors

Ferhan Atıcı, Bowling Green, KY, USA
Johnny Henderson, Waco, TX, USA
Jeffrey Lyons, Charleston, SC, USA
Jeffrey Neugebauer, Richmond, KY, USA

Preface

We are pleased to serve as Guest Editors for this Special Issue of *Differential Equations and Applications* honoring Professor Paul W. Eloe upon his retirement from the University of Dayton and for his contributions to mathematics and to the academic community. Paul earned a Ph.D. in mathematics in 1980 from the University of Missouri-Rolla (now Missouri University of Science and Technology), writing his dissertation under the supervision of Professor Louis J. Grimm on "Solutions of Differential Inequalities and Existence of Solutions for Multipoint Boundary Value Problems."

In that same year, Paul accepted an Assistant Professor position in the Department of Mathematics at the University of Dayton, where he has remained for 42 years (except for the year 1992, when he enjoyed a research leave of absence at Utah State University), rising through the ranks of Associate Professor and Full Professor. In his earlier years at UD, Paul was the driving force in initiating and organizing an interdisciplinary mathematics research seminar to encourage and support research in mathematics at UD. Throughout his career, Paul has assumed a major role in organizing such seminars. Even in this pandemic era, he has been especially active in hosting an online research seminar with world-wide speaker participation.

Paul's research cuts a wide swath with major publications across many areas including boundary value problems for ordinary differential equations (both linear and nonlinear), finite difference equations, dynamic equations on time scales, fractional differential equations, fractional difference equations, impulsive dynamics, upper and lower solutions methods, differential inequalities, maximum principles, quasilinearization methods, Green's functions characterizations, integral equations, stability, bifurcation methods, optimal control, fixed point theory, singular problems, positive solutions, multiple solutions, financial mathematics, regime switching, smallest eigenvalues characterizations, smallest eigenvalues comparison theory, optics, Harnock inequalities, partial differential equations, nonlinear interpolation,

and many others. His distinguished record shows over 160 published papers and one monograph, with over 60 collaborators. His research is highly cited, and currently, there is a very high level of citations to the pioneering paper that introduced (what is now universally known as) the Atıcı-Eloe ν-th order fractional sum and difference. In recognition of his research, Paul has received numerous invitations to speak at mathematics conferences, meetings and colloquia, and invitations to serve on mathematics journal editorial boards (currently serving on 13 editorial boards).

Paul served as the UD Department of Mathematics Chair in the years 2000 – 2008, during which time he spearheaded the proposals for two masters programs, Master in Mathematics Education and Master of Financial Mathematics. He served as the Director of the Applied Mathematics graduate program and directed the Financial Mathematics program for many years. He is known for his willingness to teach a variety of often challenging courses (at both undergraduate and graduate levels), and his breadth of teaching is staggering. His service to the academic community is exceptional, especially his years of significant work as a consultant on the Professional Master's Programs with the Council of Graduate Schools.

Paul has been awarded multiple awards including the University of Dayton Faculty Award in Scholarship, the Arts and Sciences College Scholarship Award, Vanderbilt University Honorary Phi Beta Kappa Alumni Induction and the Sigma Xi George B. Noland Research Award.

In this Special Issue, we are pleased to present 19 research articles by 33 contributors, 14 of whom have collaborated with Paul. These contributions have been invited and each has undergone a rigorous refereeing process. We express our thanks to the numerous researchers who contributed to the refereeing process as well.

The Guest Editors express deep thanks to Professors Michal Fečkan and Jean-Michel Rakotoson, Editors-in-Chief, and to Professor Ana Žgaljić Keko, Associate Editor, of *Differential Equations and Applications*, who graciously have provided the forum for this Special Issue.