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Preface [Honoring the career of John Graef on the occasion of his sixty-seventh birthday]

Paul W. Eloë

University of Dayton, peloe1@udayton.edu

Johnny Henderson

Baylor University

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Preface

It is with great pleasure that we present this Special Issue of the *Electronic Journal of Qualitative Theory of Differential Equations* to John R. Graef in honor of his sixty-seventh birthday and in recognition of his manifold contributions to mathematics and academia.

John is a native of Chicago, and for his undergraduate studies, he remained near home and attended Loyola University (Chicago). He received his B.S. degree from Loyola University in 1964. Then an interesting twist compelled him to pursue a master's degree far from Chicago at St. Mary's University in San Antonio, Texas. It seems that one driving force taking John so far from Chicago involved an eleven-month master's degree program offered by St. Mary's. And indeed, John completed his M.S. degree in the eleven month period, September 1964–August 1965. It is worth mentioning that some of John's graduate interests were in statistics, and during his year at St. Mary's, he was hired to prepare a statistical report involving data for an impending Texas legal case, a case in which the famous "Hernandez vs Texas" U. S. Supreme Court ruling had some applicability.

Upon completion of his M.S. in 1965, John remained in San Antonio and took a position teaching mathematics at a very large junior high school in the San Antonio Independent School District, a position he held for one year . . . he decided to return to graduate school and pursue a doctoral degree, possibly in statistics.

Perhaps influenced in part by a desire to be nearer to Chicago, John entered the Ph.D. program in mathematics at Southern Illinois University at Carbondale in Fall 1966 . . . however, by a twist of fate, the SIU statistician, under whom John obviously would have studied, left SIU. John quickly seized upon the idea of doing his doctoral work in differential equations under the direction of a popular new faculty member who had recently joined the SIU faculty, Dr. T. A. Burton. John was not alone in this brilliant idea, because two other of his fellow graduate students (each of whom also shared the same first name as John), also had decided to ask Burton to direct their dissertations . . . for awhile there, it was *Burton and the three-John's*. It is somewhat remarkable that Burton guided all three John's to completion of their doctoral degrees in 1970.

In Fall 1970, our John (that is, John Graef) accepted an assistant professorship in the Department of Mathematics and Statistics at Mississippi State University. By coincidence, Paul Spikes, another Burton student (not a T. A. Burton student, but rather an L. P. Burton student from Auburn University), had accepted an assistant professorship in mathematics at Mississippi State University in Fall 1970, and to add to the coincidence, Paul Spikes' doctoral research had been devoted to differential equations. Thus, began the storied *Graef and Spikes* collaborative relationship, that endured for 30 years and resulted in over 80 publications appearing during the 27-year period, 1973–1999, producing a magnitude of outstanding research on oscillatory and nonoscillatory solutions and asymptotic behavior of solutions of differential equations and functional differential equations . . . making Graef and Spikes the primary resources for most questions addressed in those areas. However, John was not restricting his research only to collaboration with Spikes, but was at the same time carrying out his own independent research as well as collaborating with *many* other authors. Post the “Graef and Spikes era”, John’s research contributions seem to have even accelerated, and to date, he has published well over 250 papers, with much of his current work devoted to functional methods for ordinary differential equations, functional differential equations, finite difference equations and differential inclusions, to name a few. His collaboration now has a strong influence of a new generation of researchers as well as maintaining the previous flavor of collaborative work with some from the earlier years. Many of John’s collaborators eagerly accepted the invitation to contribute to this Special Issue.

In 1999, after 30 years, John retired from Mississippi State University. Over that 30-year span, John had played roles in implementing many progressive changes in the mathematics programs, including introduction and development of a doctoral program in mathematical sciences. Of course, with such a strong research agenda, he played a role in mentoring his own graduate students. In particular, he directed theses and research projects for four master’s students, and he served as the major professor or directed the dissertations of five doctoral students. Two of those doctoral students contributed manuscripts for this special issue. John also was fundamental in the development and success of the prestigious interdisciplinary Mississippi State University – University of Alabama at Birmingham Conferences on Differential Equations and

Computational Simulations, whose meetings alternate between the campuses and are hosted by the respective programs at MSU (Center for Computational Science and the Department of Mathematics and Statistics) and UAB (Department of Mechanical Engineering). In addition, John also served a two-year term as interim-Head of the Department of Mathematics and Statistics at Mississippi State University.

Yet, John did not retire from Mississippi State University in order to retire. Rather, he was seeking ways to add to his overfilled schedule . . . which he found in Fall 1999 in the form of position of Head of the Department of Mathematics at the University of Tennessee at Chattanooga. He currently remains in that position, and during his time in that position, he has become a strong proponent in upgrading the visibility of the department, in improving the level of the department faculty, in seeking out benefactors for the department, in obtaining external funding for the department, and recently, he was a leading advocate in designing and in gaining approval of a new M.S. degree in Mathematics. Three of his departmental colleagues at the University of Tennessee at Chattanooga have contributed papers for this Special Issue.

Beyond fulfilling his administrative and teaching roles, John continues to produce research at an astounding rate. He serves on numerous editorial boards, and he is the Editor of *Communications in Applied Analysis*. John continues to impact the mathematical community in many and substantial ways. He is seemingly indefatigable. In addition, John has a unique ability to fill in as an extemporaneous banquet speaker (his wealth of experiences and his levity provide him a plethora of audience gripping delightful tales).

Words cannot express our admiration and appreciation for John R. Graef. It gives us great pleasure in dedicating and presenting this bound volume of this Special Issue of the *Electronic Journal of Qualitative Theory of Differential Equations* in honor of his sixty-seventh birthday and his many contributions to mathematics and academia.

Special thanks are extended to T. A. Burton, L. Hatvani, G. Makay and R. Vajda, who also gave us permission to prepare this bound version of this Special Issue for presentation purposes. (PWE & JH)

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