

**COLLEGE OF ARTS AND SCIENCES**  
**Mathematics Department**  
**Curriculum Vitae**

**GENERAL DATA**

**NAME:** Athanassios G. Kartsatos

**USF EMPLOYMENT:** September 1971, Assistant Professor

**PRESENT RANK:** Full Professor

**TENURED:** September 1976

**EDUCATION**

<b><u>Institution</u></b>	<b><u>Field of Study</u></b>	<b><u>Degree, Date</u></b>
University of Athens, Greece	Mathematics	Diploma, 1965
University of Athens, Greece	Mathematics	Doctorate, 1970

**EMPLOYMENT**

University of South Florida: Professor, 1978-

University of South Florida: Associate Professor, 1973-78

University of South Florida: Assistant Professor, 1971-73

**AREAS OF SPECIALIZATION**

Nonlinear Functional Analysis, Evolution Equations in Abstract Spaces,  
Nonlinear Accretive and Monotone Operator Theory, Nonlinear Control Theory  
With Pre-assigned Responses.

## **GRANTS RECEIVED**

**National Science Foundation (funded)/National Research Council Office for Central Europe and Eurasia (administered) COBASE Grant** for Collaboration in Basic Science and Engineering (with Professor Igor V. Skrypnik, member of the Ukrainian Academy of Sciences). Title of Project: *Nonlinear Parabolic Initial-Boundary Value Problems and Problems Involving Nonlinear Maximal Monotone and M-Convexity*. **Year 1996 .**

## **AWARDS**

Functional Differential Equations,  
Nonlinear Functional Ana

- [9] [With Prof. N. Tserpes] Mésures semi-invariantes sur un semi-groupe localement compact I, *Comptes Rendus de l'Académie des Sciences Paris Série A-B*, **267** (1968), A507-A509.
- [10] Some properties of solutions of  $\dot{x} = Q(x)$ , *Mathematische Nachrichten*, **40** (1969), 299-304.
- [11] [With Prof. N. Tserpes] A sufficient condition for the support of a measure to be a left group, *Bolletino della Unione Matematica Italiana*, **1** (1968), 538-539.
- [12] On oscillation of solutions of even order nonlinear differential equations, *Journal of Differential Equations*, **6** (1969), 232-237.
- [13] Boundedness of so

- [21] On the maintenance of oscillations of  $n$ th order equations under the effect of a small forcing term, *Journal of Differential Equations*, **10** (1971), 355-363.
- [22] Oscillation of nonlinear systems of matrix differential equations, *Proceedings of the American Mathematical Society*, **30** (1971), 97-101.
- [23] [With Prof. A. Bacopoulos] On polynomials approximating the solutions of nonlinear ordinary differential equations, *Pacific Journal of Mathematics*, **40** (1972), 1-5.
- [24] On the relationship between a nonlinear system and its nonlinear perturbation, *Journal of Differential Equations*, **11** (1972), 582-591.
- [25] On the maintenance of oscillations under the effect of a periodic forcing term, *Proceedings of the American Mathematical Society*, **34** (1972), 377-383.
- [26] Convergence in perturbed nonlinear systems, *Tôhoku Mathematical*



- [46] [With Prof. Ward] Boundedness and existence of periodic solutions of quasi-linear systems, *Journal of the Institute of Mathematics and its Applications*, Oxford, **15**, (1975), 187-194.
- [47] [With Prof. M. N. Manougian] Further results on oscillation of functional differential equations, *Journal of Mathematical Analysis and Applications*, **53** (1976), 28-37.
- [48] Locally invertible of operators and existence problems in differential systems, *Tôhoku Mathematical Journal*, **28** (1976), 167-176.
- [49] Oscillation and existence of unique positive solutions for nonlinear  $n$ th order equations with forcing term, *Hiroshima Mathematical Journal*, **6** (1976), 1-6.
- [50] [With Dr. W. R. Zigler] Rothe's method and weak solutions of perturbed evolution equations in reflexive Banach spaces, *Mathematische Annalen*, **219** (1976), 159-166.
- [51] On the oscillation problem of nonlinear equations, *Hiroshima Mathematical Journal*, **6** (1976), 257-264.
- [52]  $n$ th order oscillations with middle terms of order  $n-2$ , *Pacific Journal of Mathematics*, **67** (1976), 34-45.
- [53] On the stabilization of solutions of nonlinear systems, *Mathematical Notes and Symposia, Vol. 2: Differential Equations* (Third Mexico-US Symposium, Mexico City, 1975) (Spanish), 275-280.
- [54] Oscillation of  $n$ th order equations with perturbations, *Journal of Mathematical Analysis and Applications*, **57** (1977), 161-169.
- [55] Recent results on oscillation of solutions of forced and perturbed nonlinear differential equations of even order, *Stability of Dynamical Systems, Theory and Applications* (Proceedings of the Regional NSF-CBMS Conference, Mississippi State Univ., Mississippi State, Miss. 1975), 17-72. Lecture notes in Pure and Applied Mathematics, Vol. 28, Marcel Dekker, New York, 1977.

- [56] Analysis of the effect of certain forcings on the non-oscillatory solutions of even order equations, *Journal of the Australian Mathematical Society*, **24** (1977), 234-244.
- [57] Boundary value problems for abstract evolution equations, *Nonlinear Analysis, TMA*, **3** (1978), 1-8.
- [58] Oscillation and nonoscillation for perturbed differential equations, *Hiroshima Mathematical Journal*, **8** (1978), 1-10.
- [59] Perturbations of  $m$ -accretive operators and quasi-linear evolution equations, *Journal of the Mathematical Society of Japan*, **30** (1978), 75-84.
- [60] [With Prof. J. Toro] Comparison and oscillation theorems for equations with middle terms of order  $n-1$ , *Journal of Mathematical Analysis and Applications*, **66** (1978), 297-312.
- [61] [With Prof. T. Walters] Origins of oscillation criteria of operator differential equations in Hilbert space, *Journal of Mathematical Analysis and Applications*, (1978).
- [62] Perturbed evolution equations and Galerkin's method, *Mathematische Nachrichten*, **91** (1978), 337-346.
- [63] [With Prof. J. Toro] Oscillation and asymptotic behaviour of forced nonlinear equations, *SIAM Journal of Mathematical Analysis*, **10** (1979), 86-95.
- [64] The oscillation of a forced equation implies the oscillation of the unforced equation - small forcings, *Journal of Mathematical Analysis and Applications*, **76** (1980), 98-106.
- [65] [With Prof. Walters] Some oscillation results for matrix and vector differential equations with forcing term, *Journal of Mathematical Analysis and Applications*, **73** (1980), 506-513.
- [66] Surjectivity results for compact perturbations of  $m$ -accretive operators, *Journal of Mathematical Analysis and Applications*, **78** (1980), 1-16.
- [67] Mapping theorems involving compact perturbations and compact resolvents of nonlinear operators in Banach spaces, *Journal of*



- Mathematical Analysis and Applications*, **80** (1981), 130-146.
- [68] Some mapping theorems for accretive operators in Banach spaces, *Journal of Mathematical Analysis and Applications*, **82** (1981), 169-183.
- [69] [With Prof. J. Toro] Passivity and admissibility for evolution equations in Banach spaces, *Nonlinear Analysis, TMA*, **6** (1982), 255-236.
- [70] On the nonoscillation of a nonlinear equation with certain discontinuities, *Applicable Analysis*, **14** (1983), 287-292.
- [71] [With Prof. W. Kosmala] The behavior of an  $n$ th order equation with two middle terms, *Journal of Mathematical Analysis and Applications*, **88** (1982), 642-664.
- [72] Mapping theorems involving ranges of sums of nonlinear operators, *Nonlinear Analysis, TMA*, **6** (1982), 271-278.
- [73] [With Prof. M. E. Parrott] Existence of solutions and Galerkin approximations for nonlinear functional evolution equations, *Tôhoku Mathematical Journal*, **34** (1982), 509-523.
- [74] [With Prof. M. E. Parrott] On a class of nonlinear functional pseudoparabolic problems, *Funkcialaj Ekvacioj*, **25** (1982), 207-221.
- [75] [With Prof. M. E. Parrott] Global solutions of functional evolution equations involving locally defined Lipschitzian perturbations, *Journal of the London Mathematical Society*, **27** (1983), 306-316.
- [76] [With Prof. M. E. Parrott] Convergence of the Kato approximants for evolution equations involving functional perturbations, *Journal of Differential Equations*, **47** (1983), 358-377.
- [77] [With Prof. M. E. Parrott] A method of lines for a nonlinear abstract functional differential equation, *Transactions of the American Mathematical Society*, **286** (1984), 73-89.
- [78] [With Prof. M. E. Parrott] Functional evolution equations involving time dependent maximal monotone operators in Banach spaces, *Nonlinear Analysis, TMA*, **8** (1984), 817-833.
- [79] [With Prof. M. E. Parrott] A simplified approach to the existence and stability problem of a functional evolution equation in a general Banach

space, *Infinite Dimensional Systems (Retzhof, Austria, 1983), Lecture Notes in Mathematics, 1076*



- evolutions with pre-assigned responses, *Journal of Optimization Theory and Applications*, **81** (1994), 121-141.
- [101] Recent results involving compact perturbations and compact resolvents of accretive operators in Banach spaces, *Proceedings of the First World Congress of Nonlinear Analysts*, Tampa, Florida, 1992, Walter De Gruyter, Berlin, (1996), 2197-2222.
- [102] [With Prof. Z. Guan] Solvability of nonlinear equations with coercivity generated by compact perturbations of  $m$ -accretive operators in Banach spaces, *Houston Journal of Mathematics*, **21** (1995), 149-188.
- [103] [With Prof. Z. Guan] On the eigenvalue problem for perturbations of nonlinear accretive operators in Banach spaces, *Nonlinear Analysis, TMA*, **27** (1996), 125-141.
- [104] On the compactness of the evolution operator generated by certain nonlinear omega-accretive operators in general Banach spaces, *Proceedings of the American Mathematical Society*, **123** (1995), 2081-2091.
- [105] On the construction of methods of lines for functional evolutions in general Banach spaces, *Nonlinear Analysis, TMA*, **25** (1995), 1321-1331.
- [106] [With Prof. X. Liu] Nonlinear equations involving compact perturbations of  $m$ -accretive operators in Banach spaces, *Nonlinear Analysis, TMA*, **24** (1995), 469-492.
- [107] A compact evolution operator generated by a nonlinear time-dependent  $m$ -accretive operator in a Banach space, *Mathematische Annalen*, **302** (1995), 473-487.
- [108] Degree-theoretic solvability of inclusions involving perturbations of accretive operators in Banach spaces, *Yokohama Mathematical Journal*, **42** (1994), 171-181.
- [109] [With Prof. Z. Guan] Ranges of perturbed maximal monotone and  $m$ -accretive operators in Banach spaces, *Transactions of the American*

- Mathematical Society*, **347** (1995), 2403-2435.
- [110] [With Prof. Z. Ding] Nonzero solutions of nonlinear equations involving perturbations of accretive operators in Banach spaces, *Nonlinear Analysis, TMA*, **25** (1995), 1333-1342.
- [111] [With Prof. Z. Ding]  $P$ -Regular mappings and alternative results for perturbations of  $m$ -accretive operators in Banach spaces, *Topological Methods in Nonlinear Analysis*, **5** (1995), 291-304.
- [112] [With Dr. X. Liu] On the construction and the convergence of the method of lines for quasi-nonlinear functional evolutions in general Banach spaces, *Nonlinear Analysis, TMA*, **29** (1997), 385-414.
- [113] Sets in the ranges of nonlinear accretive operators in Banach spaces, *Studia Mathematica*, **114** (1995), 261-273.
- [114] On the perturbation theory of  $m$ -accretive operators in Banach spaces, *Proceedings of the American Mathematical Society*, **124** 1996, 1811-1820.
- [115] [With Mr. Z. Ding] Nonresonance problems for differential inclusions in separable Banach spaces, *Proceedings of the American Mathematical Society*, **124** (1996), 2357-2365.
- [116] New results in the perturbation theory of maximal monotone and  $m$ -accretive operators in Banach spaces, *Transactions of the American Mathematical Society*, **347** (1996), 2404-2435.
- [117] [With Mr. C. Liang] Extending the class of pre-assigned responses in  $K$ -controllability problems in general Banach spaces, *Nonlinear Analysis, TMA*, **28** (1997), 235--245.
- [118] [With Prof. Z. Guan] Ranges of sums for generalized pseudo-monotone perturbations of maximal monotone operators in reflexive Banach spaces, *Contemporary Mathematics*, **204** (1997), 107-124.
- [119] [With Dr. W. Zigler] Some properties of differential equations in the weak topology of a reflexive Banach space, in *Dynamical Systems and Control*, Gordon and Breach, 1997, 297-306.

- [120] [With Prof. Z. Guan] A degree for maximal monotone operators, in *Theory and Applications of Nonlinear Operators of Accretive and Monotone Type*, (ed. A. G. Kartsatos), Marcel Dekker, 1996, pp. 115-130.
- [121] An invariance of domain result for maximal monotone operators whose domains do not necessarily contain any open sets, *Proceedings of the American Mathematical Society*, **125** (1997), 1469-1478.
- [122] [With Dr. Zhou, Haiyun] Eigenvalues and ranges for perturbations of nonlinear accretive and monotone operators in Banach spaces. *Abstr. Appl. Anal.* 2 (1997), 197--205.
- [123] On the connection between the existence of zeros and the asymptotic behavior of resolvents of maximal monotone operators in reflexive Banach spaces, *Transactions of the American Mathematical Society*, **350** (1998), 3967-3987.
- [124] On saddle point conditions in the perturbation theory of nonlinear maximal monotone operators in Hilbert spaces, *News of the Highest Educational Establishments. Mathematics (Izvestiya Vysshih Uchebnih Zavedenij. Matematika.)*, Kazan, Russia, *Izv. Vyssh. Uchebn. Zaved. Mat.* 1997, no. 2, 66--74; translation in *Russian Math. (Iz. VUZ)* 41 (1997), no. 2, 61 68. (Invited Paper).
- [125] [With Profs. Y. I. Alber and E. Litsyn] Iterative solution of unstable variational inequalities on approximately given sets, *Abstract and Applied Analysis*, **1** (1996), 51-73.
- [126] [With Prof. J. Lin] Homotopy invariance of parameter-dependent domains and perturbation theory for maximal monotone and  $m$ -accretive operators, *Advances in Differential Equations*, **8** (2003), 129-160.
- [127] [With Prof. I. V. Skrypnik] Normalized eigenvectors for nonlinear abstract and elliptic operators, *Journal of Differential Equations*,

- [128] [With Prof. I. V. Skrypnik] A global approach to fully nonlinear parabolic problems, *Transactions of the American Mathematical Society*, **352** (2000), 4603-4640.
- [129] [With Prof. I. V. Skrypnik] Topological degree theories for densely defined mappings of type (S+), *Advances in Differential Equations*, **4** (1999), 413-456.
- [130] [With Prof. I. V. Skrypnik] The index of a critical point for nonlinear elliptic operators with strong coefficient growth, *Journal of the Mathematical Society of Japan*, **52** (2000), 109--137.
- [131] [With Prof. H. Zhou] Zeros and mapping theorems for perturbations of m-accretive operators in Banach spaces, *Journal of System Science and Mathematical Sciences*, **21** (2001), 446-454.
- [132] [With Prof. I. V. Skrypnik] The index of a critical point for densely defined operators of type (S+)\_L in reflexive Banach spaces, *Transactions of the American Mathematical Society*, **354** (2001), 1601-1630.
- [133] [With Prof. L. P. Markov] An L2-

define[With[(d)-3(e)-3(f)-11]V. Skrypnik] On the Topological Degree for Densely Defined Operators, *Journal of Differential Equations*, **16** (2001), 101-111. [DOI: 10.1006/jde.2001.0111](#)





- [148] [With Prof. I. V. Skrypnik] Degree theories and invariance of domain for perturbed maximal monotone operators in Banach spaces, *Advances in Differential Equations*, **12** (2007), 1275--1320.
- [149] [With Prof. D. R. Adhikari] Topological degree theories and nonlinear operator equations in Banach spaces, *Nonlinear Analysis*, **69** (2008), 1235--1255.
- [150] [With Prof. D. R. Adhikari] Strongly quasibounded maximal monotone perturbations for the Berkovits-Mustonen topological degree theory, *Journal of Mathematical Analysis and Applications*, **348**, (2008) 122--136.
- [151] [With Prof. J. Quarcoo] A new topological degree theory for densely defined  $(S+)_L$ -perturbations of multivalued maximal monotone operators in reflexive separable Banach spaces, *Nonlinear Analysis*, **69** (2008), 2339--2354.
- [152] [With Dr. Ibrahimou] The Lde6(0)-3(j)] TJETBT1 0 0 1 116.9 541.42 Tm[( )c2l9( Dr. l)-2(b)-

- [157] [With Dr. T. Asfaw] A Browder degree theory for pseudo-monotone perturbations of maximal monotone operators, *Advances in Mathematical Sciences and Applications*, **22** (2012), 91-148.
- [158] [With Dr. T. Asfaw] Variational inequalities for perturbations of maximal monotone operators in reflexive Banach spaces, *Tohoku Mathematical Journal*, 66 (2014), 171-203..
- [159] [With Dr. T. Asfaw] New results for perturbations of locally defined generalized pseudomonotone operators in Banach spaces. *Advances in Mathematical Sciences and Applications*, **24** (2014), 1-10.
- [160] [With Prof. D. R. Adhikari] Invariance of domain and eigenvalues for perturbations of densely defined linear maximal monotone operators, *Applicable Analysis*, 94 (2015), 1-19.

### **BOOKS REFERRING TO THE AUTHOR'S WORK**

- [1] **G. E. O. Giacaglia**,  
*Perturbation Methods in Non-linear Systems*, Applied  
Mathematical Sciences, Springer-Verlag, New York,  
1972.
- [2] **S. R. Bernfeld and V. Lakshmikantham**,



- [10] **K. Goebel and W. A. Kirk,**  
*Topics in Metric Fixed point Theory*, Cambridge Studies in Advanced Mathematics, Cambridge University Press, New York, 1990.
- [11] **J. M. Skowronski,**  
*Nonlinear Liapunov Dynamics*, World Scientific Publishing Co., Inc., Teaneck, NJ, 1990
- [12] **I. Gyori and G. Ladas,**  
*Oscillation Theory of Delay Differential Equations with Applications*, Oxford Mathematical Monographs, Oxford, New York, 1991.
- [13] **S. Mitrinovic, J. E. Pecaric and A. M. Fink,**  
*Inequalities Involving Functions and Their Derivatives*, Mathematics and its Applications, Kluwer, Dordrecht, 1991.
- [14] **J. Klamka,**  
*Controllability of Dynamical Systems*, Mathematics and its Applications, Kluwer, Dordrecht, 1991.
- [15] **W. V. Petryshyn,**  
*Approximation-Solvability of Nonlinear Functional and Differential Equations*, Pure and Applied Mathematics, Marcel Dekker, New York, 1993.
- [16] **R. Koplatadge,**  
*On Oscillatory Properties of Solutions of Functional Differential*





- [31] **K. S. Ha,**  
*Nonlinear Functional Evolutions in Banach spaces,*  
Kluwer Academic Publishers, Dordrecht, 2003.
- [32] **A. Granas and J. Dugundji,**  
Fixed Point Theory, Springer Monographs in Mathematics,  
Springer, New York, 2003.
- [33] **R. P. Agarwal, M. Bohner, W.-T. Li,**  
*Nonoscillation and Oscillation: Theory for Functional Differential*  
*Equations,* Marcel Dekker, New York,







[11] **TALLAHASSEE, FLORIDA**, Florida State Univ., 1974. Invited Colloquium lecture on the

- [19] **HOUSTON, TEXAS**, NSF-CBMS Regional Conference on Nonlinear Diffusion, Invited Lecture, 1976. Lecture was on *Nonlinear Diffusion in Reaction-Diffusion Systems*.
- [20] **MEXICO CITY, MEXICO**, Two-Month Seminar on *Nonlinear Diffusion in Reaction-Diffusion Systems* at Instituto Politecnico Nacional, 1977. Collaboration with Professor Jorge Gonzales Toro.
- [21] **ARLINGTON, TEXAS**, Symposium on Nonlinear Equations in Abstract Spaces, 1977, Invited lecture. Title: *Nonlinear Equations in Abstract Spaces*.
- [22] **ATLANTA, GEORGIA**, Annual Meeting, American Mathematical Society, 1978. Invited lecture.
- [23] **BILOXI, MISSISSIPPI**, Annual Meeting, American Mathematical Society, 1979. **Co-Organizer, Special Session** on *Stability and Asymptotic Behavior of Ordinary Differential Equations*.
- [24] **BLACKSBURG, VIRGINIA**, South Eastern-Atlantic Regional Conference on Differential Equations, 1981, Invited Lecture.
- [25] **CINCINNATI, OHIO**, Annual Meeting, American Mathematical Society, 1982. Invited lecture.
- [26] **DENVER, COLORADO**, Annual Meeting, American Mathematical Society, 1983. **Co-Organizer, Special Session**  
Invited Lecture.

- [27] **WASHINGTON, D.C.**, Howard University, 1984, Invited Colloquium Lecture on  $\%a[ ] | \tilde{q}^{\wedge} \tilde{a} \tilde{A} \tilde{O} \tilde{a}^{\wedge} / \wedge \} \tilde{a} \tilde{a} \tilde{A} \tilde{O} \tilde{v} \tilde{a} \tilde{a} \tilde{I} \} \cdot \tilde{A} \tilde{a} \tilde{O} \tilde{I} - \tilde{O} \tilde{B} \tilde{a}^{\wedge} \tilde{a} \tilde{I} \tilde{A} \tilde{U} ] \wedge / \tilde{a} \tilde{I} \cdot \tilde{E}$
- [28] **BIRMINGHAM, ALABAMA**, International Conference on Differential Equations and Mathematical Physics, March, 1986. Organized by the University of Alabama at Birmingham. Invited Lecture.  $\%M @ \tilde{A} \tilde{O} [ ] \zeta^{\wedge} \tilde{a} \tilde{I} \tilde{A} \tilde{A}$   
*the Interior of the Domain of an  $m$ - $\tilde{O} \tilde{B} \tilde{a}^{\wedge} \tilde{a} \tilde{I} \tilde{A} \tilde{U} ] \wedge / \tilde{a} \tilde{I} \cdot \tilde{I} \tilde{A} \tilde{O} \tilde{a} \tilde{a} \tilde{O} \tilde{U} ] \tilde{a} \tilde{a} \tilde{E}$*
- [29] **ORLANDO, FLORIDA**, University of Central Florida, Colloquium Lecture on  $\%a[ ] | \tilde{q}^{\wedge} \tilde{a} \tilde{A} \tilde{O} \tilde{v} \} \& \tilde{a} \tilde{I} \} \tilde{a} \tilde{A} \tilde{O} \tilde{c} [ | \tilde{v} \tilde{a} \tilde{I} \} \cdot \tilde{A} \tilde{a} \tilde{A} \tilde{c} \tilde{Q} \tilde{a} \tilde{A} \tilde{A} \tilde{I} \tilde{A} \tilde{I} \tilde{A} \tilde{E} 1986$ .
- [30] **MELBOURNE, FLORIDA**, Florida Institute of Technology, Department of Applied Mathematics, Colloquium Lecture on  $\%a[ ] | \tilde{q}^{\wedge} \tilde{a} \tilde{A} \tilde{O} \tilde{c} [ | \tilde{v} \tilde{a} \tilde{I} \} \tilde{A}$   
*Inclusions Involving  $m$ - $\tilde{O} \tilde{B} \tilde{a}^{\wedge} \tilde{a} \tilde{I} \tilde{A} \tilde{U} ] \wedge / \tilde{a} \tilde{I} \cdot \tilde{E} 1990$ .*
- [31] **ORLANDO, FLORIDA**, University of Central Florida, Department of Mathematics, Invited Colloquium Lecture on  $\% \tilde{O}^{\wedge} \tilde{I}^{\wedge} \tilde{A} \tilde{V} @ [ | \tilde{v} \tilde{A} \tilde{a} \tilde{A} [ ] | \tilde{q}^{\wedge} \tilde{a} \tilde{A} \tilde{A}$   
 $\tilde{O} | \tilde{q} \tilde{a} \tilde{A} \tilde{U} ! [ \tilde{a} \tilde{I} \{ \cdot \tilde{E}$
- [32] **TAMPA, FLORIDA**, First World Congress of Nonlinear Analysts, August 19-26, 1992. Member of the Global Organizing Committee. **Organizer, Special Session**  
 $\% \tilde{U}^{\wedge} \tilde{a} \tilde{I} \} \tilde{O} \tilde{U}^{\wedge} \tilde{v} | \tilde{O} \tilde{A} \tilde{Q} \tilde{c} [ | \tilde{c} \tilde{a} \tilde{A} \tilde{O} [ \{ ] \tilde{a} \tilde{e} \tilde{O} \tilde{U}^{\wedge} \tilde{I} \tilde{c} \tilde{I} \tilde{a} \tilde{a} \tilde{I} \} \cdot \tilde{A} \tilde{a} \tilde{A} \tilde{O} [ \{ ] \tilde{a} \tilde{e} \tilde{O} \tilde{U}^{\wedge} \tilde{I} [ \tilde{c}^{\wedge} ] \tilde{O} \tilde{A}$   
 $[ - \tilde{A} \tilde{O} \tilde{B} \tilde{a}^{\wedge} \tilde{a} \tilde{I} \tilde{A} \tilde{U} ] \wedge / \tilde{a} \tilde{I} \cdot \tilde{I} \tilde{A} \tilde{O} \tilde{a} \tilde{a} \tilde{O} \tilde{U} ] \tilde{a} \tilde{a} \tilde{E}$
- [33] **ATHENS, OHIO**, International Conference on Optimal Control of Differential Equations and Variational Inequalities, March, 1993. Organized by Ohio University. Invited lecture. Title:  $\% \tilde{a}^{\wedge} \tilde{I} \tilde{c} @ \tilde{I} \tilde{A} \tilde{U}^{\wedge} \tilde{v} | \tilde{O} \tilde{A} \tilde{I} \tilde{A} @ \tilde{A}$   
*Controllability of Evolutions with Pre- $\tilde{O} \tilde{E} \cdot \tilde{a} \tilde{I} \}^{\wedge} \tilde{a} \tilde{A} \tilde{U}^{\wedge} \tilde{I} [ ] \cdot \tilde{a} \tilde{E}$*



- [39] **JERUSALEM, ISRAEL**, First Joint American Mathematical Society - Israel Mathematical Union International Conference, Hebrew University (Givat Ram), May 24-26, 1995. Special Session on Optimization and Nonlinear Analysis. Invited lecture. Title: *Control Problems I* relevant joint paper with Professor Z. Guan (#118), appeared in the proceedings of the session, *Contemporary Mathematics*, Editors:



[48] **ORLANDO, FLORIDA**, "*Mathematics Today and Tomorrow*", International Conference to Celebrate the 20th Anniversary of the Founding of the International Journal of Mathematics and Mathematical Science Information, sponsored by the University of Central Florida and the Calcutta Mathematical Society, University of Central Florida, March 13-15, 1997. One of the eight invited speakers for the Special Session on Analysis. Title of lecture  $U^{\alpha} - \text{Accretive}$

[49] **TBILISI, REPUBLIC OF GEORGIA**, International Symposium on Differential Equations and Mathematical Physics, June 21-25, 1997. The symposium was organized by the A. Razmadze Institute of the Georgian Academy of Sciences. Invited lecture. There were 4 invited lectures from the US. Title of lecture:



- [53] **YOKOHAMA, JAPAN**, Yokohama University, Department of Mathematics. Mathematics Seminar of Professor Norimichi Hirano, May 26, 1999. Invited lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation and  $m$ -CR-manifolds
- [54] **FUKUOKA, JAPAN**, Fukuoka University, Department of Mathematics, Mathematics Seminar of Professor Takasi Kusano, May 28, 1999. Invited lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation on CR-manifolds
- [55] **PUSAN, REPUBLIC OF KOREA**, International Conference of Functional Differential Equations and Related Topics, June 1, 1999. Invited **plenary** lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation on CR-manifolds
- [56] **BEIJING, CHINA**, Institute of Mathematics of the Chinese Academy of Sciences, Professors Shujie Li and Bingren Li, June 7, 1999. Invited lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation on CR-manifolds
- [57] **SHANGHAI, CHINA**, Jiao Tong University, Department of Mathematics, Seminar of Professor Shunian Zhang. June 17, 1999. Invited lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation on CR-manifolds
- [58] **LVIV, UKRAINE**, International Conference on Partial Differential Equations in Honor of Juliusz P. Schauder, August 26, 1999. Invited lecture. Title of lecture:  $\mathbb{C}^{\infty}$ -valued solutions of the  $\bar{\partial}$ -equation on CR-manifolds

- [59] **PATRAS, GREECE**, International Conference on Differential and Difference Equations, July 1-4, 2002. **Plenary lecture**. Title of lecture: *Fixed Point Theorems and Applications to Various Problems*
- [60] **TAIYUAN, CHINA**, ICM Satellite Conference on Nonlinear Functional Analysis, August 14-18, 2002. Invited lecture. Title of lecture: *Degree Theory and Applications to Various Problems*

3. Terry J. Walters, 1978, 

18. **Lubomir Markov, 1998.** *The Leray-Schauder approach to second order functional evolutions in Banach spaces*
19. **Joseph Quarcoo, 2006,** *Contributions to the degree theory for perturbations of maximal monotone operators*
20. **Dhruba R. Adhikari,** “*Applications of degree theories to nonlinear operator equations in Banach spaces*”
21. **Ibrahimou Boubakari,** *The Leray-Schauder approach for the topological degree of perturbed maximal monotone operators*
22. **Teffera M. Asfaw,** *Topological Degree and Variational Inequality Theories for Pseudomonotone Perturbations of Maximal Monotone Operators*

I have been the major professor of 22 Ph.D. students. I was the major professor of the first Ph.D. student of the department of mathematics at USF in 1975.

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