

ANTONIS-IOANNIS VARDULAKIS

Profile



Antonis – Ioannis Vardulakis was born in Thessaloniki, Greece, in 1946. He studied at the University of Athens, where he obtained the B.Sc. degree in Physics in 1969. In 1969 -1970 he joined *the High Energy Nuclear Physics Group, Department of Physics, Imperial College of Science, Technology and Medicine, London, England*, as a research student. At Imperial he carried out research on the design of an automatic trajectory tracing control system used in a bubble chamber film and photograph analysis experiment. This project was instrumental for his conversion to “systems and controls” and in September 1970 he moved to Manchester, England where he obtained the M.Sc. degree in “Theory and Practice of Automatic Control” from the *Control Systems Centre of the University of Manchester Institute of Science and Technology (UMIST), Manchester, England* in 1971 and the Ph.D. in Automatic Control from UMIST in 1974. After serving his country in the Greek Air Force in 1975 he was employed as a Research Assistant at the *Department of Computing and Control, Imperial College of Science and Technology, London, England* where he was involved in a research project on “Adaptive Control of Industrial Processes”. While working at Imperial and in parallel to the above project, Antonis carried out research on the “*geometric and polynomial matrix approaches to Linear Multivariable Control*”. In 1978 he moved to Cambridge where he was employed by the *Control and Management System Division of the Engineering Department, University of Cambridge*, as a research scientist. While in Cambridge, Antonis performed research in Linear Multivariable Control analysis and synthesis methods and taught various topics on Mathematical Systems Theory and Control to the M.Sc. class of the Control and Management System Division of the *Engineering Department, University of Cambridge*. In 1984 he was appointed Professor at the *Department of Mathematics of the Aristotle University of Thessaloniki, Thessaloniki, Greece*.

Antonis – Ioannis Vardulakis held visiting positions at the Engineering Department, Brown University, Providence, R.I., U.S.A. in 1983; University of Southern California, U.S.A. in 1986, and the Department of Electrical, Electronic and Information Engineering, City University in London, England in 1986-87 and 1991 and 2003-4. He has also visited many European and American Universities and Research Centres where he gave seminars on his research interests and results. These include: The Automation and Robotics Research Institute, University of Texas at Arlington, U.S.A, University of Southern California, University of California at Davis, University of Loughborough, Cambridge University, Oxford University, Universite de Nandes, City University, University of Groningen, University of California, San Diego, La Jolla, Arizona State University.

Antonis’s research interests include mathematical systems theory, multivariable control, numerical and symbolic methods for analysis and design of control systems, digital filters, signal processing, computer aided analysis and design of control

systems, polynomial and rational matrix theory. He achieved important results in the area of the “algebraic and polynomial matrix approaches to linear multivariable control” and Control systems analysis and design techniques and in 1991 he published:

LINEAR MULTIVARIABLE CONTROL, *Algebraic analysis and Synthesis methods*
J. Wiley and Sons Ltd, Chichester, England, 1991.

Personal Information

- First name: Antonis Ioannis
- Last name: Vardoulakis
- Date of birth: 27 June 1946
- Place of birth: Thessaloniki, Greece.
- Mailing Address: Department of Mathematics
Aristotle University of Thessaloniki
Thessaloniki 540 06
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Employment Record

- 1983-present **Professor of Systems and Control Theory**
Director of Computer Science and Numerical Analysis Section,
Department of Mathematics,
Aristotle University of Thessaloniki
Thessaloniki 54006, Greece.
- 1978-1983 **Research Scientist**
Control and Management Systems Division
Engineering Department
University of Cambridge
England
- 1975-1978 **Research Assistant**
Department of Computing and Control
Imperial College of Science Technology and Medicine
London
England
- 1973-1974: **Laboratory Demonstrator**
Control System Centre
University of Manchester Institute of Science and Technology
Manchester
England.
- 1969-1970: **Research Worker**
High Energy Nuclear Physics Group
Department of Physics
Imperial College of Science and Technology
London
England.
- 1974 **Education** Ph.D. in “Control Theory”
Control Systems Centre,

University of Manchester Institute of Science and Technology
UMIST) Manchester England.

Thesis: "A Study of the Eigenvalue Assignment Problem in Linear
multivariable Systems"

Supervisor: Professor N. Munro.

1970 M.Sc. in "Theory and Practice of Automatic Control".
Control Systems Centre,
University of Manchester Institute of Science and Technology
(UMIST)
Manchester
England

Dissertation: "Abnormality and Controllability"
Supervisor: Professor D.J. Bell

1969 B.Sc. in Physics
University of Athens

Seminars

University of Oxford (3), University of Cambridge (4), University of Southern California (1), University of California at Davis (1), University of California at Santa Barbara (1), University of Minneapolis (2), Brown University (1), McGill University (1), Loughborough University of Technology (4), City University (3), University of Strathclyde (1), University of Manchester Institute of Science and Technology (1), University of Groningen (2), University of Patras (1), University of Thrace (1), Universite de Nantes (1), Automation and Robotics research Institute of the University of Texas at Arlington (3), University of California La Jolla (1), Arizona State University (1), Technical University of Crete (2), National Technical University of Athens (2).

International invited visits

The period November-December 1983 he spend in the Engineering Department, Brown University, Providence, R.I., U.S.A. where he was invited by Professor W.A. Wolovich and where he carried out research on "*Polynomial Matrix Methods in Linear Multivariable Control*". The results of this research project were subsequently published in IEEE Transactions on Automatic Control.

The period July-August 1985 he visited the University of Southern California, Los Angeles, California, invited by Professor M. Safonov. There he carried out research on "*Robustness of Stability in Linear Multivariable Systems*". The results of this research project were subsequently published in the International Journal of Control.

During the period September 1986-March 1987 he was invited as a senior Research Fellow by the Department of Electrical, Electronic and Information Engineering of the City University, London, England where he carried out research on "*Decoupling and Internal Stabilization in Multivariable Systems by the use of Unity Feedback Compensation*". The results of this research project were subsequently published in the IEEE Transactions on Automatic Control.

During the period January-July 1991 he was on sabbatical leave invited as a Senior Visiting Fellow by the Department of Electrical, Electronic and Information Engineering of The City University, London England. During the same period he also visited the Department of Engineering, University of Cambridge, Cambridge, England and the Laboratoire d'Automatique Universite de Nantes.

During the period October 2003 June 2004 he was on sabbatical leave visiting

the following Engineering Departments and Universities: Department of Electrical, Electronic and Information Engineering of The City University, London England, Automation and Robotics Research Institute of the University of Texas at Arlington, Texas, U.S.A., University of California, San Diego, University of Arizona, Arizona State University.

During the summer of 2007 (funded by the Greek Ministry of Development) he together with three ex Ph.D. students and currently members of his "Anadrasis" research team visited the headquarters of Wolfram Research, developers of Mathematica <http://picasaweb.google.com/ctagauth/Champaign/photo#s5094676469512089874> where he together with the members his research team presented a Computer Aided Design Analysis and Synthesis computer package for singular systems based on the computer algebra language *Mathematica*.

PUBLICATIONS

A.I.G. VARDULAKIS

Linear Multivariable Control. Algebraic Analysis and Synthesis Methods, J. Wiley and Sons Ltd., Chichester, England, 1991.

<http://www.amazon.co.uk/exec/obidos/ASIN/0471928593/qid%3D990006425/026-7285903-7055603>

DOCTORAL THESIS SUPERVISIONS and RESEARCH PROJECT SUPERVISIONS.

1975-1978 he supervised the Ph.D. Thesis of P.N.R. Stoye while in the Department of Computing and Control, Imperial College of Science and Technology.

1985-1990 he supervised the Ph.D. Thesis of Dr.G. Fragulis, at the Department of Mathematics of The Aristotle University of Thessaloniki. His Ph.D. Thesis was published in December 1990 and the topic of the Thesis was: "*Algebraic Analysis and Impulsive Behaviour in Generalized Singular Systems*".

1990-1993 he supervised the Ph.D. Thesis of Dr.P.N. Karampetakis, at the Department of Mathematics of The Aristotle University of Thessaloniki. His Ph.D. Thesis was published in May 1993 and the topic of the Thesis was: "*Notions of Equivalence for Linear, time invariant, multivariable Automatic Control Systems*".

1996-2000 he supervised the Ph.D. Thesis of Dr. E. Antoniou at the Department of Mathematics of The Aristotle University of Thessaloniki. His Ph.D. Thesis was published in January 2000 and the topic of the Thesis was "*Analysis of singular linear discrete time systems*".

1995-2001 he supervised the Ph.D. Thesis of Dr. P. Tzekis at the Department of Mathematics of The Aristotle University of Thessaloniki. His Ph.D. Thesis was published in January 2001 1993 and the topic of the Thesis was "*Development of Algorithmic procedures for Analysis and Synthesis of Linear Multivariable Automatic Control Systems*".

1999-2005 he supervised the Ph.D. Thesis of Dr. S. Vologiannidis, at the Department of Mathematics of The University of Thessaloniki. His Ph.D. Thesis was published in January 2005 and the topic of the Thesis was "*Development of Algorithmic procedures for Analysis and Synthesis of Linear Multivariable Automatic Control Systems*"

During the period 1983-2009 he have also supervised more than 150 final

year student dissertations on research projects on topics of Systems Theory and Controls and Computer Aided Design of Control Systems.

Currently he supervises three Ph.D. students.

FUNDED INTERNATIONAL COOPERATION AND RESEARCH PROJECTS

1989-93 «Software development for computer aided analysis and synthesis of multivariable control systems (Greek ministry of Education) . (Code number 4180)

1991-93 « Algorithm development for analysis and synthesis of multivariable control systems (research project funded by the Greek Ministry of Research and Development (Code number 1392)

1/1/94-1/7/97 Participation to the EURACO NETWORK (European Robust and Adaptive Control Network) (Training & Mobility of Researchers (TMR) Programme) (Code number ERBCHRXCT930395).

1/1/95 - 31/12/95 Bilateral cooperation between the Greek and Czech Republics (joint research project funded by the Greek Ministry of Research and Development (Code number : 1582).

1/2/96 - 1/2/98 with title Software development for computer aided analysis and synthesis of multivariable control systems Research Program PENED 96 (Code number : PENED 1630).

3/11/99 – 2/11/2001 «Algorithm Development and creation of a web based expert system for computer aided analysis and synthesis of multivariable control systems (research project funded by the Greek Ministry of Research and Development) (Code number PENED 1974)

1/2/96 – 31/1/99 «Software and an expert system development for computer aided analysis and synthesis of multivariable control systems (research project funded by the Greek Ministry of Research and Development) (Code number 8941)

1/1/99-31/12/2000 «Generic Advanced Low Cost European Network of Satellite Communications (GALENOS).», (Code number 20141) (Subcontractor of the Greek Nuclear Research Center DEMOKRITOS) (Funding by the Commission of the European Union)

2000-2001 Bilateral cooperation between the Greek and Czech Republics (joint research project funded by the Greek Ministry of Research and Development)

2000 –2002 Integrated Software Package for Industrial and Educational Applications of Automatic Control (Project funded by the **DEMOKRITOS** incubator, Larnaka Cyprus (Code number 20196).

2003-2005 Bilateral cooperation between the Greek and Czech Republics (joint research project funded by the Greek Ministry of Research and Development)

- **2006-2008**, Algorithm and Software Development using the *Mathematica* for Computer Aided Analysis and Design of Singular Systems, research project funded by the Greek Ministry of Research and Development.

OTHER QUALIFICATIONS AND INTERESTS

IEEE Member (since 1973), IEEE Senior Member (since 2007)

Founding member of the **European Union Control Association (EUCA)**.

EUCA is the European Union Association of academic and research centres in the area of Systems and Control, responsible for the organization every two years of the *European Control Conference* and the publication of the *European Journal of Control*

- Chair of the IEEE Action Group on Symbolic Methods for CACSD, part of the "IEEE Technical Committee on CACSD"
- Has organized and chaired many technical sessions and workshops and has been a member of the International Program Committees in major international conference
- Member of the organizing committee and session organizer in the 1st IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, MED '93, June 21-23, 1993, Chania, Crete, Greece.
- Member of the organizing committee and session organizer in the 2nd IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, MED '94, June 19-21, 1994, Chania, Crete, Greece
- Member of the organizing committee 4th IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, MED '96, June 10-14, 1996, Chania, Crete, Greece
- Member of the international program committee and session organizer 11th IEEE Mediterranean Conference on Control and Automation, MED '03, 18-20 June 2003, Rhodes, Greece
- Member of the international program committee and session organizer in the 12th IEEE Mediterranean Conference on Control and Automation, MED '04, 6-9 June 2004, Kusadasi, Turkey.

Reviewer for the following Scientific Journals and Conferences:

International Journal of Control (U.K.),
IEEE Transactions on Automatic Control (U.S.A.),
Automatica (U.K.),
International Journal of Systems Science (U.K.),
Systems and Control Letters (The Netherlands),
SIAM Journal of Control and optimization (U.S.A.),
Proceedings of the Institute of Electrical Engineers (IEE), Control (U.K.),
EUROPEAN CONTROL CONFERENCE,
IFAC World Congress, (IFAC=International Federation of Automatic Control)
IFAC Workshops,
CDC (Conference on Decision and Control),
American Control Conference,
Mediterranean Control Conference
Mathematical Reviews.

His main research interests are in the areas of: Linear Multivariable Feedback Control Systems, Computer Aided Design of Control Systems, Computer Control Systems, Automatic Flight Control Systems, Mathematical Systems Theory, Automation, Robotics, Signal Processing, Matrix Theory, and Symbolic Computations.

Publications in international refereed journals (1973-2009)

1. **N. Munro and A.I.G. Vardulakis**, Pole-shifting using output feedback, *International Journal of Control*, Vol. 18, No. 6, pp. 1267-1273, 1973.
2. **N. Munro and A.I.G. Vardulakis**, Computer-aided design procedure for reduced order observers, *Proceedings of the IEE*, Vol. 121, No. 4, pp. 210-212, 1974.
3. **A.I.G. Vardulakis**, A Sufficient Condition for n Specified Eigenvalues to be Assigned under Constant Output Feedback, *IEEE Transactions on Automatic Control*, Vol. AC-20, No. 3, pp. 428-429, 1975.
4. **A.I.G. Vardulakis**, Cyclicity and conversion to cyclicity, *International Journal of Control*, Vol. 22, No. 6, pp. 801-906, 1975.
5. **A.I.G. Vardulakis**, Generalized root-locus assignment of all the poles of a multivariable system by output feedback, *International Journal of Control*, Vol. 23, No. 1, pp. 39-47, 1976.
6. **A.I.G. Vardulakis**, On the structure of multivariable systems under the action of constant output feedback, *International Journal of Control*, Vol. 27, No. 2, pp. 261-269, 1978.
7. **A.I.G. Vardulakis**, On the structure of all possible controllability subspaces \mathfrak{X} of a controllable pair (A,B) in canonical form, *International Journal of Control*, Vol. 28, No. 3, pp. 394-409, 1978.
8. **A.I.G. Vardulakis and P.N.R. Stoyle**, Precompensator design for decoupling and pole assignment in multivariable systems, *Systems Science*, Vol. 5, No. 1, pp. 315-321, 1979.
9. **A.I.G. Vardulakis and P.N.R. Stoyle**, Generalized Pesultant Theorem, *Journal of the Institute of Mathematics and its Applications*, Vol. 22, pp. 331-335, 1978.
10. **A.I.G. Vardulakis and P.N.R. Stoyle**, An Algorithm for decoupling and maximal pole-assignment in multivariable systems by the use of state feedback, *IEEE Transactions on Automatic Control*, Vol. AC-24, No. 2, pp. 362-365, 1979.
11. **P.N.R. Stoyle and A.I.G. Vardulakis**, On certain connections between the geometric and polynomial matrix approaches to linear systems theory, *International Journal of Control*, Vol. 29, No. 4, pp. 565-588, 1979.
12. **P.N.R. Stoyle and A.I.G. Vardulakis**, The Mechanism of Decoupling, *International Journal of Control*, Vol. 29, No. 4, pp. 589-595, 1979.
13. **M.J. Denham and A.I.G. Vardulakis**, Structural properties of Multivariable Systems, *Proceedings of the IEE*, Vol. 126, No. 8, pp. 591-595, 1979.
14. **A.I.G. Vardulakis and P.N.R. Stoyle**, On the eigenvalue and eigenvector assignability properties of controllability subspaces, *Regelungstechnik*, Heft 9, pp. 300-301, 1979.
15. **A.I.G. Vardulakis and P.N.R. Stoyle**, On the computation of controllability subspaces, *International Journal of Systems Science*, Vol. 10, No. 12, pp. 1243-1251, 1979.
16. **A.I.G. Vardulakis**, Zero placement and the "squaring down problem". A polynomial matrix approach, *International Journal of Control*, Vol. 31, No. 5, pp. 821-832, 1980.
17. **A.I.G. Vardulakis**, On infinite zeros, *International Journal of Control*, Vol. 32, No. 5, pp. 849-866, 1980.
18. **A.I.G. Vardulakis**, Right divisors of numerator polynomial matrices and (A,B)-invariant subspaces, *International Journal of Control*, Vol. 32, No. 5, pp. 867-890, 1980.
19. **A.I.G. Vardulakis**, On the structure of maximal (A,B)-invariant subspaces: A polynomial matrix approach, *IEEE Transactions on Automatic Control*, Vol. AC-26, No. 2, pp. 422-428, 1981.
20. **P.N.R. Stoyle and A.I.G. Vardulakis**, (A,B)-invariant subspaces and polynomial matrix algebra. Towards a more integrated approach. Part I: square systems, *International Journal of Control*, Vol. 34, No. 6, pp. 1-30, 1981.
21. **A.I.G. Vardulakis**, On the state feedback diagonal decoupling of linear systems described by (A,B,C,D) quadruples, *International Journal of Control*, Vol. 34, No. 6, pp. 1153-1161, 1981.
22. **A.I.G. Vardulakis, D.J.N. Limebeer and N. Karcanias**, Structure and Smith-McMillan form of a rational matrix at infinity, *International Journal of Control*, Vol. 35, No. 4, pp. 701-725, 1982.
23. **A.I.G. Vardulakis and N. Karcanias**, Relations between strict equivalence invariants and structure at infinity of matrix pencils, *IEEE Transactions on Automatic Control*, Vol. AC-28, No. 4, pp. 514-516, 1983.
24. **A.I.G. Vardulakis and N. Karcanias**, Classifications of proper bases of rational vector spaces. Minimal McMillan degree bases, *International Journal of Control*, Vol. 38, No. 4, pp. 779-809, 1983.

25. **A.I.G. Vardulakis and N. Karcanias**, Structure, Smith-McMillan form and Coprime MFDs of a rational matrix inside a region $\wp = \Omega \cup \{\infty\}$, *International Journal of Control*, Vol. 38, No. 5, pp 927-957, 1983.
26. **A.I.G. Vardulakis**, Proper rational matrix diophantine equations and the exact model matching problem, *IEEE Transactions on Automatic Control*, Vol. AC-29, NO. 5, pp. 475-477, 1984.
27. **A.I.G. Vardulakis and N. Karcanias**, Proper and stable, minimal McMillan degree bases of rational vector spaces, *IEEE Transactions on Automatic Control*, Vol. AC-29, NO. 12, pp. 1118-1120, 1984.
28. **A.I.G. Vardulakis and N. Karcanias**, On the stable exact model matching and stable minimal design problems, *Multivariable Control: New Concepts and Tools*, Edited by S. Tsafestas, D. Reidel Publishing Co., 1984.
29. **A.I.G. Vardulakis and N. Karcanias**, On the stable exact model matching problem, *Systems and Control Letters*, Vol. 5, No. 4, pp 237-242, 1985.
30. **A.I.G. Vardulakis**, On the computation of proper, feedforward, internally stabilizing and pole placing compensators, *International Journal of Control*, Vol. 44, No. 1, pp 267-275, 1986.
31. **A.I.G. Vardulakis**, Smith-McMillan canonical forms for rational matrices, *Encyclopedia for Systems and Control*, Pergamon Press, 1987.
32. **A.I.G. Vardulakis**, Internal stabilization and decoupling in linear multivariable systems by unity output feedback compensation, *IEEE Transactions on Automatic Control*, Vol. AC-32, NO. 7, pp. 735-739, 1987.
33. **A.I.G. Vardulakis**, Necessary and sufficient condition for robustness under known additive perturbation, *International Journal of Control*, Vol. 47, No. 5, pp 1295-1266, 1988.
34. **A.I.G. Vardulakis**, Decoupling of linear multivariable systems by unity output feedback compensation, *International Journal of Control*, Vol. 50, No. 4, pp 1079-1088, 1989.
35. **A.I.G. Vardulakis and G. Fragulis**, Infinite elementary divisors of polynomial matrices and impulsive solutions of linear homogeneous matrix differential equations, *Circuits Systems and Signal Processing*, Vol. 8, No. 3, pp.357-372, 1989.
36. **G. Fragulis, B.G. Mergios and A.I.G. Vardulakis**, Computation of the inverse of a polynomial matrix and evaluation of its Laurent expansion, *International Journal of Control*, Vol. 53, No. 2, pp 431-443, 1991.
37. **N.P. Karampetakis and A.I.G. Vardulakis**, Matrix fractions and full system equivalence, *IMA Journal of Mathematical Control and Information*, 9, pp . 147-160, 1992.
38. **N.P. Karampetakis and A.I.G. Vardulakis**, Generalized state space system matrix equivalents of a Rosenbrock system matrix, *IMA Journal of Mathematical Control and Information*, 10, pp 323-344, 1993
39. **A.C. Pugh, N.P. Karampetakis, G.E. Hayton and A.I.G. Vardulakis**, On certain McMillan degree conditions appearing in control, *IMA Journal of Mathematical Control and Information*, 10, pp 361-373, 1993.
40. **A.C. Pugh, N.P. Karampetakis, A.I.G. Vardulakis and G.E. Hayton**, A fundamental notion of equivalence for linear multivariable systems, *IEEE Transactions on Automatic Control*, Vol. AC-39, NO. 5, pp. 1141-1145, 1994.
41. **N.P. Karampetakis, A.C. Pugh and A.I.G. Vardulakis**, Equivalence transformations of rational matrices and applications, *International Journal of Control*, Vol. 59, No. 4, pp 1001-1020, 1994.
42. **N.P. Karampetakis, B.G. Merzios and A.I.G. Vardulakis**, Computation of the transfer function matrix and its Laurent expansion of generalized two-dimensional systems, *International Journal of Control*, Vol. 60, No. 4, pp 521-541, 1994.
43. **A.C. Pugh, N.P. Karampetakis, A.I.G. Vardulakis and G.E. Hayton**, Structural properties of inverse linear systems, *Kybernetika*, Vol. 30, No. 6, pp 597-606, 1994.
44. **G.F. Fragulis and A.I.G. Vardulakis**, Reachability of polynomial matrix descriptions (PMDs), *Circuits Systems Signal Process*, Vol. 14, No. 6, pp. 787-815, 1995.
45. **N.P. Karampetakis, A.I.G. Vardulakis and A.C. Pugh**, A classification of generalized state space reduction methods for linear multivariable systems, *Kybernetika*, Vol. 31, No. 6, pp 547-557, 1995.
46. **N.P. Karampetakis, A.C. Pugh, A.I.G. Vardulakis and G.E. Hayton**, An Extension of Wolovich's definition of equivalence of linear systems, *IEEE Transactions on Automatic Control*, Vol. AC-41, NO. 2, pp. 228-232, 1996
47. **E.N. Antoniou, A.I.G. Vardulakis and P.N. Karampetakis**, A spectral characterization of the behavior of discrete time AR-representations over a finite time interval, *Kybernetika*, Vol. 34, No. 5, pp 555-564, 1998.
48. **A.I.G. Vardulakis, E.N. Antoniou and P.N. Karampetakis**, On the solution and impulsive behaviour of polynomial matrix descriptions of free linear multivariable systems, *International Journal of Control*, Vol. 72, No. 3, pp 215-228, 1999.
49. **E.N. Antoniou and A.I.G. Vardulakis**, A note on the action of constant pseudostate feedback on the internal properness of an ARMA model, *Automatica*, Vol. 35, pp. 1453-1456, 1999.

- 50. P. Tzekis, P.N. Karampetakis and A.I.G. Vardulakis, On the division of polynomial matrices, IMA Journal of Mathematical Control and Information, Vol. 17, pp. 1-42, 1999.**
- 51. P.N. Karampetakis and A.I.G. Vardulakis, On the reduction of a polynomial matrix model of a linear multivariable system to generalized state-space form, IMA Journal of Mathematical Control and Information, Vol. 17, pp. 1-42, 2000.**
- 52. A.I.G. Vardulakis and E.N. Antoniou, Fundamental equivalence of discrete time AR-representations, I.J. Control, Vol. 76, No. 11, pp. 1078-1088, 2003**
- 53. P.N. Karampetakis, S. Vologianidis and A.I.G. Vardulakis, A new notion of equivalence for discrete time AR-representations, I. J. Control, Vol., 77, 2004, no. 6, 584–597**
- 54. E.N. Antoniou and A.I.G. Vardulakis, On the computation and parameterization of proper denominator assigning compensators for strictly proper plants”, IMA Journal of Math. Control and Information, Vol. 22, No 1, March 2005, pp. 12-25.**
- 55. E.N. Antoniou and A.I.G. Vardulakis and S; Vologinidis, Numerical computation of minimal polynomial bases: A generalized resultant approach, Linear Algebra and its Applications, Volume 405, 1 August 2005, Pages 264-278.**
- 56. N. P. Karampetakis and A.I.G. Vardulakis, 2006, Special Issue on the Use of Computer Algebra Systems for Computer Aided Control Systems Design, International Journal of Control, Vol.79, No.11, pp.1313-1320.**
- 57. Antonis Vardulakis and Clive Pugh, 2008, Plato’s hidden theorem on the distribution of primes, The Mathematical Intelligencer, Volume 30, Number , 2008, pp. 61-63.**
- 58. A.I.G. Vardulakis, N.P. Karampetakis, E.N. Antoniou and Evangelia Tictopoulou, 2009, On the Realization Theory of Polynomial Matrices and the Algebraic Structure of Pure Generalized State Space Systems, International Journal of Applied Mathematics and Computer Science, Vol. 19, Issue: 1, pp. 77-88.**
- 59. N.P. Karampetakis, E.N. Antoniou, A.I.G. Vardulakis, and S. Vologianidis, 2009, Symbolic Computations on Rings of Rational Functions and Applications in Control Engineering, Computer Aided Systems Theory – EUROCAST 2009, Lecture Notes in Computer Sciences Vol.5717/2009, Editors : Roberto Moreno –Diaz, Franz Pichler and Alexis Quesada-Arencibia, 12th International Conference, Las Palmas de Gran Canaria, Spain, February 2009, Revised selected papers, Springer Berlin/Heidelberg 2009, pp.587-594**
- 60. A.I.G. Vardulakis and C. Kazantzidou, 2009, Denominator Assignment, invariants and canonical forms under dynamic feedback compensatiobn in linear multivariable systems, 17th Mediterranean Conference on Control and Automation, June 2009, Thessaloniki, Greece, to be submitted to IEEE transactions on Automatic Control.**

Some Publications in Conference Proceedings

1991

1. A.I. G. VARDULAKIS and G. FRAGULIS, Impulsive Behavior of Autonomous Generalized Singular Systems, Proceedings of the 1st European Control Conference ECC 91, JULY 1991, Grenoble, France
2. N. KARABETAKIS and A.I.G. VARDULAKIS, Generalized State Space System Matrix Equivalents of a Rosenbrock System Matrix, Proceedings of the 1st European Control Conference, ECC 91, JULY 1991, Grenoble, France.
3. N. KARAMPETAKIS, B.G. MERGIOS and A.I.G. VARDULAKIS, Direct Controllability and Observability Time Domain Conditions of Generalized Dynamical Systems, Proceedings of the 1st European Control Conference, July 1991, Grenoble, France.
4. N. KARAMPETAKIS and A.I.G. VARDULAKIS, Polynomial Matrices and Equivalent Singular Pencils, Presented during the Workshop on Singular Systems, City University, December 1991.
5. A.I.G. VARDULAKIS, On the Transformation of a Polynomial Matrix Model of a Linear Multivariable System to Generalized State Space Form, Proceedings of 30th IEEE Conference on Decision and Control, 11-13 December 1991, Brighton, U.K.

1992

6. Pugh A.C., Karampetakis N.P., Hayton G.E. and Vardulakis A.I.G., 1992, A fundamental notion of equivalence for Linear Multivariable Systems., Proceedings of the 31st IEEE Conference on Decision and Control, Tuscon, Arizona, Dec. 1992.
7. Pugh A.C., Karampetakis N.P., Hayton G.E. and Vardulakis A.I.G., 1992, Interpretation of a certain McMillan degree condition appearing in Control., Proceedings of Sixth IMA Conference on Control : Modelling, Computation, Information, U.M.I.S.T., 2-4 September 1992.
8. Karampetakis N.P., Pugh A.C., Hayton G.E. and Vardulakis A.I.G., 1992, On a fundamental notion of equivalence in Linear System Theory., Proceedings of the Second IFAC Workshop on Systems Structure & Control, Prague 3-5 September 1992, PERGAMON PRESS, pp.356-359.
9. Karampetakis N.P., Pugh A.C. and Vardulakis A.I.G., 1992, Equivalence Transformations of Rational Matrices., Proceedings of the Second IFAC Workshop on Systems Structure and Control, Prague 3-5 September 1992, PERGAMON PRESS, pp.40-43.

10. Karampetakis N.P. and Vardulakis A.I.G., 1992, On the solution space of singular state-space AR-representations., Proceedings of International Symposium on Implicit and Nonlinear Systems, pp.191-196, 14-15 December 1992, Fort Worth, Texas.

1993

11. Karampetakis N.P., Pugh A.C., Vardulakis A.I.G. and Hayton G.E., 1993, Structural properties of square inverse linear systems., Proceedings of the IEEE Mediterranean Symposium on New Directions in Control Theory, June 21-23, 1993, Chania, Crete, GREECE.

12. Karampetakis N.P., Mertzios B.G. and Vardulakis A.I.G., 1993, Generalized models of 2-D linear discrete systems and computation of its transfer function matrix., Proceedings of the Second European Control Conference, pp. 1490-1494, June 28-July 1, 1993, Groningen, The Netherlands.

13. Karampetakis N.P. and Vardulakis A.I.G., 1993, On the behavior of discrete-time AR-Representations., Proceedings of the IEEE Mediterranean Symposium on New Directions in Control Theory, June 21- June 23, 1993, Chania, Crete, GREECE.

14. Karampetakis N.P., Pugh A.C., Vardulakis A.I.G. and Hayton G.E., 1993, An extension of Wolovich's definition of equivalence of Linear Systems., Proceedings of the 32nd IEEE Conference on Decision & Control , pp.2389-2394, December 15-17, 1993.

15. G.F. FRAGULIS and A.I.G. VARDULAKIS, Evaluation of the Reachability subspace of general form PMDs, Proceedings of the IEEE Mediterranean Conference on "New Directions of Control Theory and Applications", pp. 307-310, 21-23 June 1993, Crete, Greece

16. Karampetakis N.P. and Vardulakis A.I.G., 1993, On the behavior of continuous-time AR-Representations., Proceedings of the Second European Control Conference, pp.1784-1789, June 28- July 1, 1993, Groningen, The Netherlands.

1994

17. G.F. FRAGULIS and A.I.G. VARDULAKIS, Structural Properties of Internally Proper PMDs. Part I: Transformation into Fuhrmann equivalent state space model. Proceedings of the 2nd IEEE Mediterranean Conference on "New Directions of Control Theory and Applications", 19-22 June 1994, Crete, Greece.

18. A.I.G. VARDULAKIS, Model Transformation and Equivalence, European Robust and Adaptive Control Network, Young Researchers week, 18 Aug. - 2 Sept. 1994, University of Dublin, Trinity College.

19. Karampetakis N.P., Pugh A.C., Vardulakis A.I.G. and Hayton G.E., 1994, Observations on the notion of minimality in the generalized state-space., Proceedings of the IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, pp.592-599, June 19-22, 1994, Chania, Crete, GREECE.

20. Karampetakis N.P., Pugh A.C. and Vardulakis A.I.G., 1994, Generalized state-space representations for Linear Multivariable Systems., Proceedings of the 2nd IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, pp.209-216, June 19-22, 1994, Chania, Crete, GREECE.

1995

21. Karampetakis N.P., and Vardulakis A.I., 1995, On the solution of ARMA-representations., Proceedings of the 3rd IEEE Mediterranean Symposium on New Directions in Control Theory and Applications, pp.156-163, Limassol, Cyprus, July 11-13, 1995.

22. Karampetakis N. P. and Vardulakis A.I.G., On the reduction of a polynomial matrix model of a linear multivariable system to generalised state space form., Proceedings of the EURACO Workshop on "Recent Results in Robust and Adaptive Control", 11-14th September, 1995, Florence, Italy, pp.65-92.

23. A.I.G. VARDULAKIS, Polynomial structure of Generalised systems, Symposium on Automation and Control, Automation and Robotics Research Institute, University of Texas at Arlington, 11 Dec.. 1995.

1996

24. N.P. KARAMPETAKIS A.C. PUGH and A.I.G. VARDULAKIS, On the fundamental equivalence of non-regular AR-representations, EURACO Workshop in Portugal. (1996).

25. Tzekis P., Karampetakis N.P. and Vardulakis A.I., 1996, Solutions of Matrix Diophantine equations over rings via MAPLE, Proceedings of the 4th IEEE Mediterranean Symposium on New Directions in Control and Automation, June 10-14, 1996, Chania, Crete.

26. Tzekis P., Karampetakis N. P., and Vardulakis A.I., 1996, On the division of polynomial matrices., Proceedings of the 4th IEEE Mediterranean Symposium on New Directions in Control and Automation, pp.125-129, June 10-14, 1996, Chania, Crete.

1997

27. A. I. G. Vardulakis, S. N. Antoniou and N. P. Karampetakis, 1997, A spectral characterization of the behavior of discrete time AR-Representations over a finite time interval, Proceedings of the 4th European Control Conference, 1-4 July, 1997, Brussels, Belgium.

28. S. N. Antoniou, N. P. Karampetakis and A. I. G. Vardulakis, 1997, A classification of the solution of non-regular, discrete time descriptor systems., Proceedings of the 36th IEEE Conference on Decision and Control.

29. Y. Vlioras, E. Antoniou, A.I.G. Vardulakis, "Implementation of some Linear Multivariable System's Algorithms via Maple", Proceedings of the European Control Conference 1997 (ECC 97), July 1997, Brussels, Belgium.

2001

30. P. Tzekis, N.P. Karampetakis and A.I.G. Vardulakis , 2001, RATRIX : A RATIONAL matRiX calculator for computer aided analysis and synthesis of linear multivariable control systems, KTISIVIOS, National Conference on Automation, Robotics and Industrial Production, Santorini, June 28-30, 2001.

31. N. P. Karampetakis, S. Vologianidis and A.I. Vardulakis, 2001, Notions of equivalence for discrete time AR-representations, Proceedings of the 15th IFAC World Congress 2002. (invited paper)

32. A.I.G. Vardulakis, E.N. Antoniou, "Fundamental equivalence of discrete time AR-representations", proceedings of the 1st IFAC Symposium on System Structure and Control, August 29-31, 2001, Prague, Czech Republic.

2003

33. E. ANTONIOU and A.I.G. VARDULAKIS, A numerical method for the computation of proper denominator assigning compensators for strictly proper plants, IEEE Med. Conference on Systems and Control, June 2003, Rodos, Greece.

2004

34. E.N. Antoniou, A.I.G. Vardulakis, and S. Vologianidis, "On the Computation of Minimal Polynomial Bases", Proc. of the 12th IEEE Med. Conference on Control and Automation, June 2004, Kusadasi, Turkey.

2007

35. A.I.G. Vardulakis, N. P. Karampetakis and E. Antoniou, On the realization theory of polynomial matrices and the algebraic structure of pure generalized state space systems, European Control Conference, Kos, Greece, July 2-5, 2007.

2008

36. A.I.G. Vardulakis, N.P. Karampetakis, E. Antoniou, S. Vologianidis Descriptor Systems Toolbox : A Mathematica-Based Package for Descriptor Systems, 2008 IEEE International Symposium on Computer-Aided Control System Design (CACSD 2008), San Antonio, Texas, USA.

2009

37. N.P. Karampetakis, E.N. Antoniou, A.I.G. Vardulakis, and S. Vologianidis, 2009, Symbolic Computations on Rings of Rational Functions and Applications in Control Engineering, Computer Aided Systems Theory – EUROCAST 2009, Proceedings of the 12th International Conference, Las Palmas de Gran Canaria, Spain, February 2009.

38. A.I. Vardulakis and C. Kazantzidou, Denominator assignment , invariants and canonical forms under dynamic feedback compensation in linear multivariable systems, 17th Mediterranean Conference on Control and Automation, Thessaloniki, Greece, June 24-26, 2009.

39. A.I. Vardulakis Linear Multivariable Control. Methods & Philosophy of the Algebraic Approach, Plenary talk, 17th Mediterranean Conference on Control and Automation, Thessaloniki, Greece, June 24-26, 2009..

40. A. Vardulakis: On the computation and parametrization of proper denominator assigning compensators for strictly proper plants. International Conference on Modern Mathematical Methods in Science and Technology M3ST'09, Thursday 3 – Saturday 5 September 2009, Poros, Greece.