

George Nakos

Professor, U.S. Naval Academy

Address Mathematics Department, M/S 9E, U.S. Naval Academy, 572C Holloway Road, Chauvenet Hall, Annapolis, MD 21402-5002, USA

Email gcn@usna.edu **Web** <http://www.usna.edu/Users/math/gcn/>

Phones Office: (410) 293-6779, Dept.: (410) 293-6700, Dept. Fax: (410) 293-4883

Overview George Nakos was born in Athens, Greece and was educated in Athens, London, and Baltimore. In graduate school (King's College and Johns Hopkins University) he specialized in Algebraic Topology & Homotopy Theory, where he took advanced courses from experts such as I.G. MacDonald (Queen Mary, University of London), J.M. Boardman, and W.S. Wilson (Johns Hopkins). His thesis was on the bordism groups of finite abelian groups. Right after graduate school in 1985, he joined the mathematics department of the US Naval Academy. There, in the next ten years he reached the rank of full professor with tenure. While at the Academy he obtained expertise in computers and worked in computer algebra projects such as Groebner bases, resultants (Dixon resultant), and polynomial systems. He has programmed in Mathematica, Maple, Pascal, GAP, Singular, Macaulay, Magma, and Sage. He is the principal author of a linear algebra book published by Brooks/Cole-ITP and the author of the instructor's and student's manual. Twice he has been a visiting scholar at the Johns Hopkins University, most recently in Fall 2000, where he computed the Brown-Peterson Cohomology of a Product of two Lens Spaces. Since 1987 he has taught graduate Engineering Mathematics, Cryptology, and Modern Algebra for Johns Hopkins University, Part-Time Programs in Engineering. He has also worked on image recognition from an uncalibrated camera, modeling and simulation, on several aspects of the Chesapeake Bay research project, on X-ray machine calibrations, and on the mathematics of laser beams. Finally, he has served for three years as the Associate Director of Research for Advanced Computing at the U. S. Naval Academy.

RECENT HONORS

- 2011 Johns Hopkins University, Engineering for Professionals Excellence in Teaching Award
- 2005 Recipient of the John Smith Award for Distinguished College or University Teaching given annually by the Maryland-Washington DC-Virginia Section of the Mathematical Association of America
- The 2003 Recipient of US Naval Academy Teaching Excellence Award
- 2003-2005 Finalist for the John Smith Award
- The 2001-2003 Mathematics Department Nominee for the US Naval Academy Teaching Excellence Award

EDUCATION

- B.S. Mathematics, Athens University, Greece 1976
- M.S. Mathematics King's College, University of London, UK, 1977
- Ph.D. Mathematics, The Johns Hopkins University at Baltimore, USA, 1985

CAREER

- 2008-2011 Associate Director of Research for Advanced Computing, U.S. Naval Academy
- 1996-present Professor of Mathematics U.S. Naval Academy
- 1990-1996 Associate Professor of Mathematics U.S. Naval Academy
- 1985-1990 Assistant Professor of Mathematics U.S. Naval Academy
- Fall 2000 Visiting Scholar, The Johns Hopkins University
- Spring 1993 Visiting Scholar, The Johns Hopkins University
- Summer 1985 Assistant Professor of Mathematics Towson State University
- 1987-present, Instructor, Part-Time Programs in Engineering, Johns Hopkins University

RESEARCH INTERESTS

ALGEBRA and COMPUTER ALGEBRA: Polynomial systems, Resultants, Groebner Bases, and Power series over various rings and fields. ALGEBRAIC TOPOLOGY: Homotopy theory and Generalized (Co)Homology Theories, especially the Brown Peterson Homology.

Selected Publications

- G. Nakos, "On the Brown-Peterson Homology and Cohomology of $P^{2n} \times P^{2m}$ ", Michigan Mathematical Journal 37 (1990) pp. 211-217
- G. Nakos, "On the p^k -series in Brown-Peterson Homology", Journal of Pure and Applied Algebra North Holland 66 (1990) pp. 303-309
- G. Nakos, "Expansions of Powers of Multivariate Power Series", The Mathematica Journal Vol. 3 Issue 1 1993 pp. 45-47
- G. Nakos, "On Ideals Annihilating the Toral Class of $BP_*(x \text{ BZ}/p^k)$ ", Canadian Mathematical Bulletin Vol 36 (3) 1993 pp. 332-243
- N. Glinos and G. Nakos, "An Application of Computer Algebra to Algebraic Topology", International Journal of Computer Mathematics Vol. 33 (1990) pp. 33-41
- G. Nakos and N. Glinos, "Computer Algebra and Desuspensions of Stunted Real Projective Spaces", International Journal of Computer Mathematics Vol. 43 (1992) pp. 11-20
- G. Nakos and N. Glinos, "Computing Groebner Bases over the Integers", The Mathematica Journal Vol 4 Issue 3 Summer 1994 pp. 70-75
- D. C. Johnson and G. Nakos, "The $[2^k]$ -series Revisited", Journal of Pure and Applied Algebra North Holland 112 (1996) pp. 207-217
- G. Nakos and R.M. Williams, "Elimination with The Dixon Resultant", Mathematica for Education and Research, Vol. 6, No. 3, Summer 1997, pp. 11-21
- G. Nakos, P.R. Turner and R.M. Williams, "Fraction-Free Algorithms for Linear and Polynomial Equations", ACM SIGSAM Bulletin Vol. 31 No. 1, December 1997 Issue 122, pp. 11-19
- G. Nakos and R.M. Williams, "A Fast Calculation of the Characteristic Polynomial", Mathematica for Education and Research, Vol. 9, Issue 1, January 2001, pp. 6-12
- G. Nakos, "The Brown-Peterson Homology of Two Lens Spaces", in preparation

PROFESSIONAL SOCIETIES

Current or past member of the: American Mathematical Society, Mathematical Association of America, Greek Mathematical Society, Association for Computing Machinery, World Scientific and Engineering Society

BOOKS

- **George Nakos and David Joyner, "Linear Algebra with Applications" p.666, Published by Brooks/Cole CB © 1998 ISBN/ISSN: 0-534-95526-6**
- **George Nakos, "Complete Solutions Manual for Nakos and Joyner's Linear Algebra with Applications", p.298, Published by Brooks/Cole CB © 1998 ISBN/ISSN: 0-534-95528-2**
- **George Nakos, "Student's Solutions Manual for Linear Algebra with Applications" p.162, Published by Brooks/Cole CB © 1998 ISBN/ISSN: 0-534-95529-0**
- **George Nakos, "Modern Linear Algebra and Applications" (manuscript completed)**
- **George Nakos, "Invitation to Cryptology" in preparation**
- **George Nakos, "Polynomial Systems and Applications", in preparation**

SAMPLE OF TAUGHT COURSES

Precalculus, Calculus I, II, III, Differential Equations, Linear Algebra, Advanced Linear Algebra, Intermediate Linear Algebra, Cryptology, Capstones in Cryptology, Engineering Mathematics, Engineering Mathematics for Oceanographers, Mathematics for Physicists and Engineers, Advanced Numerical Analysis, Complex Analysis, Group Theory, Field Theory, Algebraic Structures, Groebner Bases, Advanced Analysis 2, Introduction to Invariant Theory, Mathematical Logic, Introductory Topology, General Topology. Since 1989 he has taught continuously the graduate course "Mathematical Methods for Engineers", at the Whiting School of Engineering, Mechanical Engineering at Johns Hopkins University. He has also taught several times graduate Cryptography and graduate Abstract Algebra at the Computational and Applied Mathematics program at Educational Programs for Professionals, in Applied Physics Laboratory at Johns Hopkins University.