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Current Research Interests

- Numerical Mathematics
- Sparse matrix technology
- Design and evaluation of algorithms
- Mathematical software
- Numerical solution of PDE's

Publications

On-line publications are available in an FTP archive

Other information

- [Short biography](#)
 - Photograph
 - HERMIS and HERCMA conferences
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www.aueb.gr/conferences/hercma2005

Some related publications:

A) Selected Papers from published research work (1980-2005)

LIPITAKIS E.A., EVANS D.J.: Solving non-linear elliptic difference equations by extendable sparse factorization procedures, *Computing* 24, 325-339 (1980).

LIPITAKIS E.A., EVANS D.J.: The rate of convergence of an approximate matrix factorization semi-direct method, *Numerische Mathematik* 36, 237-251 (1981).

LIPITAKIS E.A.: Direct and approximate algorithmic methods for solving self-adjoint elliptic partial differential equations in three-space dimensions, *Journal*

of Computational and Applied Mathematics 9, 167-176 (1983).

LIPITAKIS E.A.: Generalized extended to the limit sparse factorization techniques for solving large unsymmetric finite element systems, Computing 32, 255-270 (1984).

LIPITAKIS E.A.: Approximate root-free factorization techniques for solving elliptic difference equations in three-space variables, Linear Algebra and its Applications 76, 247-269 (1986).

LIPITAKIS E.A.: Numerical solution of 3D boundary-value problems by generalized AIM techniques, Intern. Journal of Computer Maths 31, 69-86 (1989).

LIPITAKIS E.A.: Euclid's algorithm and accelerated iterative methods, HMS Bulletin: special issue on Computer Mathematics, Vol . 31, 51-76 (1990).

LIPITAKIS E.A., GRAVVANIS A.G.: Explicit preconditioned iterative methods for solving large unsymmetric FE systems, Computing 54, 167-183 (1995).

BEKAKOS M.P., EFREMIDIS O.B. and LIPITAKIS E.A.: Parallel simulators of artificial neural networks, Procs of the 4th Hellenic-European Research on Computer Maths and its Applications (HERCMA '98) Conference, AUEB, Sept. 1998, Athens, 318-326.

LIPITAKIS E.A.: On sparse approximate inverse preconditioning techniques, Procs. of the 16th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation, Aug. 2000, Lausanne, Switzerland.

DEMETRIOU I.C. and LIPITAKIS E.A.: Certain positive definite submatrices that arise from the binomial coefficient matrices, Applied Numerical Mathematics 36, 219-229 (2001).

DEMETRIOU I.C., LIPITAKIS E.A.: Measuring the smoothing performance of Least Squares approximations by non-negative divided differences, HERMIS- $\mu\pi$ 2, 115-132 (2001).

DEMETRIOU I.C. and LIPITAKIS E.A.: Modifications of matrix QR factorisations in Least Squares data fitting by nonnegative divided differences, Procs of the 6th Hellenic-European Research an Computer Maths and its Applications (HERCMA2003) Conference, AUEB, Sept. 2003, Athens, 543-556.

DEMETRIOU I.C. and LIPITAKIS E.A. (2003): Quadratic Programming Methods for Least Squares Data Fitting by nonnegative differences, HERMIS Intern. J. 4, 183-198.

PLATIS A., GRAVVANIS G., GIANNOUTAKIS K. and E.A. LIPITAKIS (2003): A two phase cyclic nonhomogeneous Markov chain performability evaluation by explicit approximate inverses applied to a replicated database system, Journal of Mathematical Modelling and Algorithms 2, 235-249.

GRAVVANIS G., GIANNOUTAKIS K. and E.A. LIPITAKIS: On the numerical solution of fully parameterized singularly perturbed nonlinear initial and boundary value problems, 17th IMACS World Congress Scientific Computation, Applied Mathematics and Simulation (IMACS 2005), Paris, France, July 11-15, 2005

GRAVVANIS G., GIANNOUTAKIS K. and E.A. LIPITAKIS: Solving fully parameterized singularly perturbed non-linear parabolic and elliptic PDE's by explicit approximate inverse FE matrix algorithmic methods, Procs of the 7th Hellenic-European Research an Computer Maths and its Applications (HERCMA2005) Conference, AUEB, Sept. 2005, Athens, On-Line:
www.aueb.gr/pympe/hercma/proceedings2005

DEMETRIOU I.C., LIPITAKIS E.A. and E. VASSILIOU : L2 approximation to discrete data by nonnegative differences, Procs of the 7th Hellenic-European Research an Computer Maths and its Applications (HERCMA2005) Conference, AUEB, Sept. 2005, Athens, On-Line:
www.aueb.gr/pympe/hercma/proceedings2005

LIPITAKIS E.A. (2006): On sparse approximate inverse matrix techniques and Evans preconditioned methods, Journal Neural Parallel & Scientific Computations (NPSC), Dynamic Publishers, Atlanta, U.S.A.

B) Books and Special Editions

Programming with FORTRAN 77 and extensions to FORTRAN 9X (in Greek), LEA Publishers, Athens, 1989, 256 pages.

Computing Methods in Numerical Analysis (in Greek), Computer Mathematics Vol. I, Lea Publishers, Athens, 1991, 452 pages.

Proceedings of HERMIS '92, 1st Hellenic Conference on Mathematics and Informatics, Sept. 1992, Athens, HMS Press, 555 pages.

Advances on Computer Mathematics and its Applications, World Scientific Publishers, 1993, 373 pages

Proceedings of HERMIS '94, 2nd Hellenic European Conference on Mathematics and Informatics, Sept. 1994, Athens, HMS Press, Vol.1 & Vol.2, 1020 pages.

Proceedings of HERMIS '96, 3rd Hellenic European Conference on Mathematics and Informatics, Sept. 1996, Athens, Lea Press, 756 pages.

The Computer Cosmos: An Introduction to Computers and Informatics, (in Greek), Lea Press, 1997, 370 pages.

Proceedings of HERCMA '98, 4th Hellenic European Conference on Mathematics and Informatics, Sept. 1998, Athens, Lea Press, Vol. 1 & Vol. 2, 1062 pages.

Proceedings of HERCMA 2001, 5th Hellenic European Conference on Mathematics and Informatics, Sept. 2001, Athens, Lea Press, Vol. 1 & Vol. 2.

Info-Mathematics: Topics of Applied Numerical Analysis- Computational Methods and Algorithmic Techniques in Scientific Computing (in Greek), Book series on Computer Mathematics and its Applications, Volume 2 (2001) and Volume 3 (2002), Lea Press.

Proceedings of HERCMA 2003, 6th Hellenic European Conference on Mathematics and Informatics, Sept. 2003, Athens, Lea Press, Vol. 1 & Vol. 2.

Proceedings of HERCMA 2005, 7th Hellenic European Conference on Mathematics and Informatics, Sept. 2005, Athens, Lea Press, Vol. 1 & Vol. 2 (On Line):
www.aueb.gr/pympe/hercma/proceedings2005

Mathematics and Computing Sciences: Foundations, Breakthroughs and Developments (1900-2004) (In Greek), Volume 2, LEA Publishers, Athens, 2005

Programming with FORTRAN 77, extensions to FORTRAN 9X and FORTRAN 2003 (in Greek), LEA Publishers, Athens, 2005, 400 pages.

Computer Mathematics and its Applications: Advances and Developments (1994-2005), LEA Publications, Athens, Hellas, 2006.

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