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Education

Ph.D., Applied Mathematics, University of Colorado at Denver, 1993-1998; Advisor: Jan Mandel. Thesis title: *Analysis of a Lagrange Multiplier Based Domain Decomposition*.

M.S., Mathematical Modeling in Physics, Charles University, Prague, 1988-1993. Advisor: Miloslav Feistauer. Thesis title: *The Method of Boundary Elements and Integral Equations in Mathematical Physics*.

Fields of Interest

Wave propagation, acoustic scattering, domain decomposition methods, numerical analysis, finite element and boundary element method, parallel computations, scientific computing, mathematical software development.

Professional Experience

- Research Associate at Stanford University (2004-present): Research and software development in finite elements for wave propagation problems.
- Senior Research Associate at the University of Colorado at Boulder (2001-2004): Research and software development in the area of wave propagation and domain decomposition methods.
- Research Associate at the University of Colorado at Boulder (1998-2001)
- Research Assistant/Teaching Assistant at the University of Colorado at Denver (1993-1998): Mathematical research in numerical analysis with specialization in domain decomposition techniques. Teaching undergraduate courses in mathematics.

Awards and Honors

Charles University Scholarship – 1990-1993

Graduation with Honors – Charles University - 1993

Journal Articles

R. DJELLOULI, C. FARHAT, A. MACEDO, AND R. TEZAUR, *Finite element solution of two-dimensional acoustic scattering problems using arbitrarily shaped convex artificial boundaries*, Journal of Computational Acoustics, 8 (2000), pp. 81–100.

R. DJELLOULI, C. FARHAT, AND R. TEZAUR, *A fast method for solving acoustic scattering problems in frequency bands*, Journal of Computational Physics, 168 (2001), pp. 412–432.

C. FARHAT, R. TEZAUR, AND R. DJELLOULI, *On the solution of three-dimensional inverse obstacle acoustic scattering problems by a regularized Newton method*, Inverse Problems, 18 (2002), pp. 1229–1246.

C. FARHAT, P. AVERY, R. TEZAUR, AND J. LI, *FETI-DPH: A dual primal domain-decomposition method for acoustic scattering*, Inverse Problems, 18 (2002), pp. 1229–1246. Journal of Computational Acoustics, 13 No. 3 (2005), pp. 499–524.

C. FARHAT, R. TEZAUR, AND P. WEIDEMANN-GOIRAN, *Higher order extensions of a discontinuous Galerkin method for mid-frequency Helmholtz problems*, International Journal for Numerical Methods in Engineering, 61 (2004), pp. 1938–1956.

C. FARHAT, P. WEIDEMANN-GOIRAN, AND R. TEZAUR, *A discontinuous Galerkin method with plane waves and Lagrange multipliers for the solution of short wave exterior Helmholtz problems on unstructured meshes*, Wave Motion, 39 (2004), pp. 307–317.

I. HARARI, R. TEZAUR, AND C. FARHAT, *A study of higher-order discontinuous Galerkin and quadratic least-squares stabilized finite element computations for acoustics*, Journal of Computational Acoustics, 14 No. 1 (2006), pp. 1–19.

J. MANDEL, C. DOHRMANN, AND R. TEZAUR, *An algebraic theory for primal and dual substructuring methods by constraints*, Applied Numerical Mathematics, 54 (2005), pp. 167–193.

J. MANDEL AND R. TEZAUR, *Convergence of a substructuring method with Lagrange multipliers*, Numerische Mathematik, 73 (1996), pp. 473–487.

J. MANDEL, R. TEZAUR, AND C. FARHAT, *A scalable substructuring method by Lagrange multipliers for plate bending problems*, SIAM Journal on Numerical Analysis, (1999), pp. 1370–1391.

J. MANDEL AND R. TEZAUR, *On the convergence of a dual-primal substructuring method*, Numerische Mathematik 88 (2001), pp. 543–558.

D. RIXEN, C. FARHAT, R. TEZAUR, AND J. MANDEL, *Theoretical comparison of the FETI and algebraically partitioned FETI methods, and performance comparisons with a direct sparse solver*, Int. Journal for Numerical Methods in Engineering, 46 (1999), pp. 501–534.

R. TEZAUR AND C. FARHAT, *Three-dimensional discontinuous Galerkin elements with plane waves and Lagrange multipliers for the solution of mid-frequency Helmholtz problems*, International Journal for Numerical Methods in Engineering, 66 (2006), pp. 796–815.

R. TEZAUR, C. FARHAT, AND R. DJELLOULI, *Three-dimensional finite element calculations in acoustic scattering problems using arbitrarily shaped convex artificial boundaries*, International Journal for Numerical Methods in Engineering, 53 (2002), pp. 1461–1476.

R. TEZAUR, A. MACEDO, AND C. FARHAT, *Iterative solution of large-scale acoustic problems with multiple right hand sides by a domain decomposition method with Lagrange multipliers*, International Journal for Numerical Methods in Engineering, 51 (2001), pp. 1175–1193

P. VANĚK, M. BREZINA, AND R. TEZAUR, *Two-grid method for linear elasticity on unstructured meshes*, SIAM J. Sci. Comp., 21 (1999), pp. 900–923.

L. ZHANG, R. TEZAUR, AND C. FARHAT, *The discontinuous enrichment method for elastic wave propagation in the medium frequency regime*, International Journal for Numerical Methods in Engineering, 66 (2006), pp. 2086–2114.

Book Chapters and Refereed Proceedings Articles

R. DJELLOULI, C. FARHAT, A. MACEDO, AND R. TEZAUR, *Finite element solution of three-dimensional acoustic scattering problems using arbitrarily shaped convex artificial boundaries*, Mathematical and Numerical Aspects of Wave Propagation, A. B. et al., ed., SIAM, 2000, pp. 817–821.

R. DJELLOULI, R. TEZAUR, AND C. FARHAT, *On the solution of inverse obstacle acoustic scattering problems with a limited aperture*, Mathematical and Numerical Aspects of Wave Propagation, P. J. G. C. Cohen, E. Heikkola, and P. Neittaanmaki, eds., Springer, 2003, pp. 625–630.

C. FARHAT, A. MACEDO, AND R. TEZAUR, *FETI-H: a scalable domain decomposition method for high frequency exterior Helmholtz problems*, in Proceedings of the 11th International Conference on Domain Decomposition Methods, 1999, pp. 231–241.

C. FARHAT, R. TEZAUR, AND R. DJELLOULI, *An iterative method for the solution of three-dimensional inverse acoustic scattering problems*, Proceedings of the 2002 ASME International Mechanical Engineering Congress and Exposition, Louisiana, November 17–22, 2002.

C. FARHAT, R. TEZAUR, AND R. DJELLOULI, *On the solution of three-dimensional inverse obstacle acoustic scattering problems by a regularized Newton method*, Proceedings of the Second Conference on Inverse Problems, Control, and Shape Optimization, J.J.T. Ha Duong and M. Jaoua, eds., 2002, pp. 105–110.

M. FEISTAUER, G. C. HSIAO, R. E. KLEINMAN, AND R. TEZAUR, *Analysis and numerical realization of coupled BEM and FEM for nonlinear exterior problems*, in Inverse Scattering and Potential Problems in Mathematical Physics: Proceedings of a Conference held in Oberwolfach, December, 1993, R. Kleinman, R. Kress, and E. Martensen, eds., 1993,

pp. 47–73.

S. GHOSAL, J. MANDEL, AND R. TEZAUR, *Automatic substructuring for domain decomposition using neural networks*, in Proceedings of IEEE International Conference on Neural Networks, vol. 6, Orlando, June 28 - July 3, 1994, pp. 3816–3821.

A. MACEDO, R. DJELLOULI, C. FARHAT, AND R. TEZAUR, *Finite element solution of two-dimensional acoustic scattering problems using arbitrarily shaped convex artificial boundaries*, Proceedings of the XX CILAMCE - 20th Iberian Latin-American Congress on Computational Methods in Engineering, R. M. L. R. F. B. P. M. Pimenta and E. S. A. N. eds., Polytechnic School of Sao Paulo, 1999, pp.284.1–284.20.

P. VANĚK, R. TEZAUR, M. BREZINA, AND J. KŘÍŽKOVÁ, *Two-level method with coarse space size independent convergence*, in Domain Decomposition Methods in Sciences and Engineering, R. Glowinski, J. Périaux, Z. Shi, and O. Widlund, eds., John Wiley & Sons Ltd., New York, N.Y., 1997. Proceedings of the International Conference on Domain Decomposition (8th : 1995 : Peking, China).

Other Papers and Projects

The Method of Boundary Elements and Integral Equations in Mathematical Physics, Charles University, 1993, Master's thesis.

Simulating OEA Automobile Airbag Actuator Production: a C++ approach, UCD, Department of Mathematics, 1994, part of the Math clinic report.

Analysis of a Lagrange Multiplier Based Domain Decomposition, University of Colorado at Denver, 1998, Ph.D. thesis.