

LIST OF PUBLICATIONS

Lori Badea

Journal and Proceedings Articles

1. L. Badea, Remarks concerning the convergence of the Jacobi and Gauss-Seidel iterative processes, *Rev. Roum. Math. Pures Appl.*, no. 8, 1980, pp. 1153-1165.
2. L. Badea, On the convergence of the Gauss-Seidel iteration for systems of linear algebraic equations with partitioned matrices, *Rev. Roum. Sci. Techn.*, series of Mech. Appl., no. 4, 1986, pp. 453-465.
3. L. Badea, A generalization of the Schwarz alternating method to an arbitrary number of subdomains, *Numer. Math.*, 55, 1989, pp. 61-81.
4. L. Badea, On the Schwarz alternating method with more than two subdomains for nonlinear monotone problems, *SIAM J. Numer. Anal.*, vol. 28, no. 1, February 1991, pp. 179-204.
5. L. Badea, On a domain decomposition method for parallel computing in elasto-plasticity, in *Numerical Methods in Engineering*, Ch. Hirsh, O. C. Zienkiewicz, E. Onate (Editors), Elsevier, Sci. Publ., 1992, pp. 321-328.
6. L. Badea and P. Gilormini, Application of a Domain Decomposition Method to Elasto-plastic Problems, *Int. J. Solids Structures*, vol. 31, no. 5, 1994, pp. 643-656.
7. L. Badea and E. Soós, Damage and buckling in elasto-plastic bars, *Proceedings of The XVIIth Conference in Mechanics of Solids*, vol. 1, 9-11 June 1994, Constanta, Romania, pp. 131-138.
8. L. Badea, Finite element solution for a seepage flow problem through a non-homogeneous multiply-connected dam, *Proceedings of The 5th International Conference on Finite Elements and thier Applications*, 27-29 April 1995, Constanta, Romania, pp. 41-50.
9. L. Badea and M. Predeleanu, On the dynamical cavitation problem in viscoplastic solids, *Mechanics Research Communications*, vol. 23, no. 5, 1996, pp. 461-474.
10. L. Badea, On a plasticity problem with damage, *Rev. Roum. Math Pures et Appl.*, 42, 7-8, 1997, pp. 495-511.
11. L. Badea and M. Predeleanu, On the dynamic cavitation in solids, in *Advanced Methods in Materials Processing Defects*, M. Predeleanu and P. Gilormini (Editors), Elsevier, 1997, pp. 3-13.
12. L. Badea and E. Soós, A new theory of the stored energy in the elasto-plasticity and the torsion test, *Eur. J. Mech., A/Solids*, **16**, 3, 1997, pp. 467-500.

13. L. Badea and J. Wang, The Schwarz method for variational inequalities with applications, in *Iterative Methods in Scientific Computation*, vol. 4 of Series in Computational and Applied Mathematics, J. Wang, M. Allen, B. Chen and T. Mathew (Editors), 1998, pp. 199-204.
14. L. Badea, R. E. Ewing and J. Wang, A study of free boundary problems of fluid flow in porous media by mixed methods, in *Free boundary problems: theory and applications*, I. Athanasopoulos, et al., eds, CRC Research Notes in Mathematics, 409, Chapman & Hall, New York, 1999, pp. 3-13.
15. L. Badea and J. Wang, A new formulation for the valuation of American options, I: Solution uniqueness, in *Analysis and Scientific Computing*, Eun-Jae Park and Jongwoo Lee (Eds.), Proceedings of the 19th Daewoo Workshop in Pure Mathematics, Volume 19, Part II, 1999, pp. 3-16.
16. L. Badea and J. Wang, A new formulation for the valuation of American options, II: Solution existence, in *Analysis and Scientific Computing*, Eun-Jae Park and Jongwoo Lee (Eds.), Proceedings of the 19th Daewoo Workshop in Pure Mathematics, Volume 19, Part II, 1999, pp. 17-33.
17. A. Miroux, L. Badea, D. Arizmendi, B. Bacroix and J. L. Raphanel, The influence of grain orientation on the stored energy during cold rolling of steels - Experimental evidence and finite element simulation, *Archives of Metallurgy*, vol. 44, 1999, pp. 241-252.
18. L. Badea, Adaptive mesh finite element method for the sedimentary basin problem, *Rev. Roum. Math. Pures Appl.*, tome 45, no. 2, 2000, pp. 171-181.
19. L. Badea and J. Wang, An Additive Schwarz method for variational inequalities, *Math. of Comp.*, **69**, 232, 2000, pp. 1341-1354.
20. L. Badea and P. Daripa, On a boundary control approach to embedding domain method, *SIAM J. on Control and Optimization*, Vol. 40, No. 2, 2001, pp. 421-449.
21. L. Badea and P. Daripa, A fast algorithm for two-dimensional elliptic problems, *Numerical Algorithms*, **30**, 2002, pp. 199-239.
22. L. Badea and P. Daripa, A Domain Embedding/Boundary Control Method to Solve Elliptic Problems in Arbitrary Domains, in *Proceedings of the 41st IEEE Conference on Decision and Control*, December 2002, pp. 3004-3009.
23. L. Badea, Convergence rate of a multiplicative Schwarz method for strongly nonlinear variational inequalities, in *Analysis and Optimization of Differential Systems*, V. Barbu, I. Lasiecka, D. Tiba and C. Varsan, Eds, Kluwer Academic Publishers, 2003, pp. 31-42.
24. L. Badea, On a multiplicative Schwarz domain decomposition method for variational inequalities, in L. Badea, C. Faciu, L. Gratie, M. Mihailescu-Suliciu, D. Polisevski and N. Simion, *Current Topics in Continuum Mechanics*, vol. II, Lazar Dragos, Ed., Editura Academiei, Bucharest, 2003, pp. 11-40.

25. L. Badea and P. Daripa, On a Fourier method of embedding domains using an optimal distributed control, *Numerical Algorithms*, **32**, 2003, pp. 261-273.
26. L. Badea, X.-C. Tai and J. Wang, Convergence rate analysis of a multiplicative Schwarz method for variational inequalities, *SIAM J. Numer. Anal.*, vol. 41, nr. 3, 2003, pp. 1052-1073.
27. L. Badea, On the Schwarz-Neumann method with an arbitrary number of domains, *IMA J. Num. Anal.*, **24**, 2004, pp. 215-238.
28. L. Badea, On the valuation of American options, *Annals of University of Craiova, Mathematics and Computer Science series*, vol. 31(2), 2004, pp. 91-97.
29. L. Badea, Multilevel Schwarz method for the minimization with constraints of non-quadratic functionals, *An. St. Univ. Ovidius Constanta*, vol. 12(2), 2004, pp. 51-64.
30. L. Badea and P. Daripa, A domain embedding method using the optimal distributed control and a fast algorithm, *Numerical Algorithms*, **36**, 2004, pp. 95-112.
31. L. Badea, I. Ionescu and S. Wolf, Domain decomposition method for dynamic faulting under slip-dependent friction, *J. of Computational Physics*, 201, 2004, pp. 487-510.
32. L. Badea, I. R. Ionescu and S. Wolf, Schwarz decomposition method in capturing dynamic friction instabilities, in P. Neittaanmäki, T. Rossi, S. Korotov, E. Oñate, J. Périaux and D. Knörzer (eds.), *Proceedings of the 4th European Congress on Computational Methods in Applied Sciences and Engineering*, ECCOMAS, 2004.
33. R. Brenner, O. Castelnau and L. Badea, Mechanical field fluctuations in polycrystals estimated by homogenization techniques, *Proc. R. Soc. Lond. A*, **460**, 2004, pp. 3589-3612.
34. L. Badea, One and two-level multiplicative Schwarz methods for the constrained minimization of non-quadratic convex functionals, in M. Mihailescu-Suliciu (ed.), *New trends in continuum mechanics*, Conference Proceedings, September 8-12, 2003, Constanta, Romania, Theta Publisher, Bucharest, 2005, pp. 1-12.
35. L. Badea, Domain decomposition method for fixed-point problems, *Analele Universitatii Bucuresti, Seria Matematica*, vol. 1, 2006, pp. 5-16.
36. L. Badea, Convergence rate of a Schwarz multilevel method for the constrained minimization of non-quadratic functionals, *SIAM J. Numer. Anal.*, vol. 44, no. 2, 2006, pp. 449-477.
37. L. Badea, Additive Schwarz method for the constrained minimization of functionals in reflexive Banach spaces, in U. Langer et al. (eds.), *Domain decomposition methods in science and engineering XVII*, LNCSE 60, Springer, 2008, pp. 427-434.

38. L. Badea, Schwarz methods for inequalities with contraction operators, *Journal of Computational and Applied Mathematics*, 215, 1, 2008, pp. 196-219. (doi:10.1016/j.cam.2007.04.004)
39. L. Badea, I. Ionescu and S. Wolf, Schwarz method for earthquake source dynamics, *J. of Computational Physics*, 227, 8, 2008, pp. 3824-3848. (doi:10.1016/j.jcp.2007.11.044)
40. L. Badea, One- and Two-Level Domain Decomposition Methods for Nonlinear Problems, in B.H.V. Topping, P. Iványi, (Eds.), *Proceedings of the First International Conference on Parallel, Distributed and Grid Computing for Engineering*, Civil-Comp Press, Stirlingshire, UK, Paper 6, 2009. (doi:10.4203/ccp.90.6)
41. L. Badea, M. Discacciati and A. Quarteroni, Numerical analysis of the Navier-Stokes/Darcy coupling, *Numer. Math.*, **115**, 2, 2010, pp. 195-227. (doi:10.1007/s00211-009-0279-6)
42. L. Badea, Multigrid methods with constraint level decomposition for variational inequalities, *Annals of the A. R. S., Series on Mathematics and its Applications*, **3**, 2, pp. 300–331, 2011.
43. L. Badea and R. Krause, One- and two-level Schwarz methods for inequalities of the second kind and their application to frictional contact, *Numer. Math.*, **120**, 4, 2012, pp. 573-599. (doi 10.1007/s00211-011-0423-y)
44. L. Badea, Multigrid methods for some quasi-variational inequalities, *Discrete and Continuous Dynamical Systems - Series S*, **6**, 6, pp. 1457–1471, 2013.
45. L. Badea and M. Cocou, Approximation results and subspace correction algorithms for implicit variational inequalities, *Discrete and Continuous Dynamical Systems - Series S*, **6**, 6, pp. 1507–1524, 2013.
46. S. Wolf, L. Badea and I. R. Ionescu, Chapter 2: Schwarz method for contact dynamics, in F. Magoulès (ed.), *Schwarz Algorithms and Domain Decomposition Methods*, Saxe-Coburg Publications, Stirlingshire, Scotland, in press, 2013.
47. L. Badea, Global convergence rate of a standard multigrid method for variational inequalities, *IMA J. Numer. Anal.*, 34, 2014, pp. 197-216. (doi:10.1093/imanum/drs054)
48. L. Badea, Two-level methods with optimal computing complexity for variational inequalities of the second kind, *Annals of the University of Bucharest (mathematical series)*, 5 (LXIII), 2014, pp. 195-218.
49. L. Badea, Convergence rate of some hybrid multigrid methods for variational inequalities, *Journal of Numerical Mathematics*, **23**, 3, 2015, pp. 195-210.
50. L. Badea and M. Cocou, Internal and subspace correction approximations of implicit variational inequalities, *Mathematics and Mechanics of Solids*, **20**, 9, 2015, pp. 1026-1048 (DOI: 10.1177/1081286513514075, 2013).

51. L. Badea, Globally convergent multigrid method for variational inequalities with a nonlinear term, in T. Dickopf et al. (eds.) *Domain Decomposition Methods in Science and Engineering XXII*, LNCSE 104, Springer, 2016, pp. 427-435.
52. L. Badea, Global convergence rates of some multilevel methods for variational and quasi-variational inequalities, in C.-O. Lee et al. (eds.) *Domain Decomposition Methods in Science and Engineering XXIII*, LNCSE 116, Springer, 2017, pp. 3-16.
53. L. Badea and F. Lebon, Schwarz method for dual contact problems, *Comp. Appl. Math.*, 36, 2017, pp. 719-731 (DOI 10.1007/s40314-015-0255-y).

Books

1. Gh. Marinescu, L. Badea, G. Grigore, C. Jambor, P. Mazilu, I. Rizzoli, C. Stefan, *Probleme de Analiza Numerica* (Problems of Numerical Analysis), Editura Didactica si Pedagogica, Bucuresti, 1978.
2. L. Badea, C. Faciu, L. Gratie, M. Mihailescu-Suliciu, D. Polisevski and N. Simion, *Current Topics in Continuum Mechanics*, vol. II, (Lazar Dragos, Editor) Editura Academiei, Bucharest, 2003.

PhD Thesis

1. L. Badea, *Sur le calcul parallèle en élasto-plasticité par la méthode de décomposition des domaines de Schwarz*, Ph.D. Thesis, Paris 6 University, Paris, France, 1992.

Preprints

1. L. Badea, On the convergence of the Gauss-Seidel iteration for systems of linear algebraic equations with partitioned matrices, INCREST, *Preprint series in mathematics*, no. 27/1984.
2. L. Badea, On the Schwarz alternating method with more than two subdomains for nonlinear monotone problems, INCREST, *Preprint series in mathematics*, no. 27/1989.
3. L. Badea, On a plasticity problem with damage, *Preprint series of the Institute of Mathematics of the Romanian Academy*, no. 33/1994.
4. L. Badea and E. Soós, A new theory of the stored energy in the elasto-plasticity and the torsion test, *Preprint series of the Institute of Mathematics of the Romanian Academy*, no. 28/1995.
5. L. Badea, On the Schwarz-Neumann method with an arbitrary number of domains, *Preprint series of the Institute of Mathematics of the Romanian Academy*, no. 24/1998.

6. L. Badea, Domain decomposition Schwarz method for strongly nonlinear inequalities, *Preprint series of the Institute of Mathematics of the Romanian Academy*, nr. 6, 2002.
7. L. Badea, I. Ionescu and S. Wolf, Domain decomposition method for dynamic faulting under slip-dependent friction, *Preprint nr. 03-11c, Laboratoire de Mathématiques, Université de Savoie*, France, 2003.
8. L. Badea, M. Discacciati and A. Quarteroni, Mathematical analysis of the Navier-Stokes and Darcy coupling, *Technical Report of Politecnico di Milano*, Milan, 2006.
9. L. Badea, I. Ionescu and S. Wolf, Schwarz method for earthquake source dynamics, *Preprint nr. 06-12b, Laboratoire de Mathématiques, Université de Savoie*, France, 2006.
10. L. Badea, Schwarz methods for inequalities with contraction operators, *Preprint series of the Institute of Mathematics of the Romanian Academy*, no. 1/2007.
11. L. Badea, M. Discacciati and A. Quarteroni, Mathematical analysis of the Navier-Stokes and Darcy coupling, *Technical Report of Ecole Polytechnique Fédérale de Lausanne*, Lausanne, 2008.
12. L. Badea and R. Krause, One- and two-level multiplicative Schwarz methods for variational and quasi-variational inequalities of the second kind: Part I - general convergence results, *INS Preprint*, no. 0804, Institute for Numerical Simulation, University of Bonn, June 2008.
13. L. Badea and R. Krause, One- and two-level multiplicative Schwarz methods for variational and quasi-variational inequalities of the second kind: Part II - frictional contact problems, *INS Preprint*, no. 0805, Institute for Numerical Simulation, University of Bonn, June 2008.
14. L. Badea, Multigrid methods for variational inequalities, *Preprint series of the Institute of Mathematics of the Romanian Academy*, nr. 1, 2010.
15. L. Badea, Multigrid methods with constraint level decomposition for variational inequalities, *Preprint series of the Institute of Mathematics of the Romanian Academy*, nr. 3, 2010.
16. L. Badea, One- and two-level additive methods for variational and quasi-variational inequalities of the second kind, *Preprint series of the Institute of Mathematics of the Romanian Academy*, nr. 5, 2010.
17. L. Badea and M. Cocou, Approximation results and subspace correction algorithms for implicit variational inequalities, *Preprint HAL Id: hal-00949611*, 2014, <https://hal.archives-ouvertes.fr/hal-00949611>.
18. L. Badea and M. Cocou, Internal and subspace correction approximations of implicit variational inequalities, *Preprint HAL Id: hal-00949613*, 2014, <https://hal.archives-ouvertes.fr/hal-00949613>.

19. L. Badea and F. Lebon, Schwarz method for dual contact problems, Computational and Applied Mathematics, Springer Verlag, 2017, **36**, 1, pp.719-731, DOI: 10.1007/s40314-015-0255-y, *Preprint HAL Id: hal-01508775*, <https://hal.archives-ouvertes.fr/hal-01508775>.