

## Publications.

### Articles parus ou acceptés pour publication\_\_\_\_\_

1. Z. Belhachmi, C. Bernardi— Resolution of fourth-order problems by the mortar element method, *Comput. Methods Appl. Mech. Engrg.*, **116**, (1994), 53–58.
2. G. Allaire, Z. Belhachmi, F. Jouve— The homogenization method for topology and shape optimization. Single and multiple loads cases, *European Journal of finite elements*, **5**, (1996), 649–672.
3. Z. Belhachmi— Nonconforming mortar element methods for the spectral discretization of two-dimensional fourth-order problems, *Siam J. Numer. Anal.*, **34**, (1997), 1545–1573.
4. Z. Belhachmi, B. Brighi, K. Taous— Solutions similaires pour un problème de couche limite en milieu poreux, *C. R. Acad. Sci. Paris, Série II b* **328** (2000), 407–410.
5. Z. Belhachmi, B. Brighi, K. Taous— On the concave solutions of the Blasius equation, *Acta Math. Univ. Comenianae*, **LXIX**, **2**, (2000), 199–214.
6. Z. Belhachmi, F. Ben Belgacem— Éléments finis d'ordre deux pour l'inéquation variationnelle de Signorini, *C. R. Acad. Sci. Paris, Série I* **331** (2000), 727–732.
7. Z. Belhachmi, C. Bernardi, A. Karageorghis— Spectral element discretization of the circular driven cavity: Part II: The bilaplacian equation, *Siam J. Numer. Anal.*, **38**, (2001), 1926–1960.
8. Z. Belhachmi, B. Brighi, K. Taous— On a family of differential equations for boundary layer approximations in porous media, *European J. Appl. Math.*, **12**, (2001), 513–528.
9. Z. Belhachmi, C. Bernardi, A. Karageorghis— Spectral element discretization of the circular driven cavity: Part III: The Stokes equation in primitive variables, *J. Math. Fluid Mech.*, **5**, (2003), 24–69.
10. Z. Belhachmi, F. Ben Belgacem— Quadratic finite element for Signorini problem, *Math. Comp.* **72**, (2003), 83–104.

11. Z. Belhachmi, B. Brighi, K. Taous— Numerical simulations of free convection about a vertical flat plate embedded in a porous media, *Computational Geosciences*, **7**, **2**, (2003), 137-166.
12. Z. Belhachmi— A posteriori error estimates for the 3D stabilized mortar finite element method applied to the Laplace equation, *Math. Model. Numer. Anal.*, **37**, **6**, (2003), 991-1013.
13. Z. Belhachmi, J.M. Sac-Epée, J. Sokolowski—Approximation par la méthode des éléments finis de la formulation en domaine régulier de problèmes de fissures, *C. R. Acad. Sci. Paris, Série I* **338** (2004), 499-504.
14. Z. Belhachmi, C. Bernardi, A. Karageorghis— Spectral element discretization of the circular driven cavity: Part IV: The Navier-Stokes Equations, *J. Math. Fluid Mech.*, **6** (2004), 121-156.
15. Z. Belhachmi—Residual a posteriori error estimates for a 3D mortar finite element method: the Stokes system, *IMA J. Numer. Anal.* **24** (2004), **3**, 521-547.
16. S. Tahir, Z. Belhachmi—Mixed finite elements discretizations of some variational inequalities arising in elasticity problems in domains with cracks, (2004-Fez conference on Differential Equations and Mechanics). *Electron. J. Diff. Eqns., Conference* **11**, (2004), 33-40.
17. Z. Belhachmi, C. Bernardi, S. Deparis—Weighted Clément operator and application to the finite element discretization of the axisymmetric Stokes problem. To appear in *Numerische Mathematik*.
18. Z. Belhachmi, J.M. Sac-Epée, J. Sokolowski— Mixed finite element methods for a smooth domain formulation of a crack problem. To appear in *SIAM J. Numer. Anal.*
19. Z. Belhachmi, A. Karageorghis, K. Taous—Identification and reconstruction of a small leak zone in a pipe by a spectral element method. To appear in *J. scientific computing*.
20. Z. Belhachmi, C. Bernardi, S. Deparis, F. Hecht—An efficient discretization of the Navier-Stokes equations in an axisymmetric domain PartI: The discrete problem and its numerical analysis. To appear in *J. scientific computing*.

21. Z. Belhachmi, D. Bucur—Non-smooth defects identification and approximation. To appear in C. R. Acad. Sci. Paris, Série Mathématiques.

**Articles soumis<sup>(\*)</sup>** \_\_\_\_\_

22. Z. Belhachmi, A. Karageorghis—Spectral mortar element discretization of the Poisson equation with mixed boundary conditions.
23. Z. Belhachmi, D. Bucur—Stability and uniqueness for the crack identification problem.
24. Z. Belhachmi, D. Bucur, J.M. Sac-Epée—Finite Element Approximation of the Neumann Eigenvalue Problems in Domains with Multiple Cracks.
25. Z. Belhachmi, C. Bernardi, S. Deparis, F. Hecht— A truncated Fourier/finite element discretization of the Stokes equations in an axisymmetric domain.

*(\*) Preprints disponibles*

*<http://poncelet.sciences.univ-metz.fr/belhach>*