

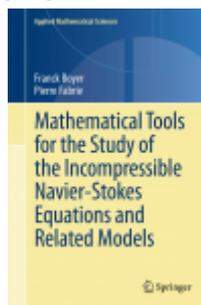
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Livres

1. F. Boyer, P. Fabrie : Eléments d'analyse pour l'étude de quelques modèles d'écoulements de fluides visqueux incompressibles, Mathématiques et Applications Vol. 52, 405 p., Springer (2006) [Published on-line](#)



2. F. Boyer, P. Fabrie : Mathematical tools for the study of the incompressible Navier-Stokes equations and related models, Applied Mathematical Sciences, vol. 183, Springer (2013) [Published on-line](#) [Erratum and complements](#)



Articles

1. F. Boyer : [Mathematical study of multiphase flow under shear through order parameter formulation](#), Asymptotic Analysis Vol. 20 no 2, pp 175-212 (1999) [Published on-line](#)
2. F. Boyer : [Nonhomogeneous Cahn-Hilliard fluids](#), Annales de l'IHP : Analyse non linéaire, Vol. 18 no 2, pp 225-259 (2001) [Published on-line](#)
3. F. Boyer : [A theoretical and numerical model for the study of incompressible mixture flows](#), Computers and Fluids Vol. 31 no 1, pp 41-68 (2002) [Published on-line](#)
4. F. Boyer, P. Fabrie : [Persistence of 2D perturbations of 1D solutions for a Cahn-Hilliard flow model under high shear](#), Asymptotic Analysis Vol. 33 no 2, pp 107-151 (2003) [Published on-line](#)
5. F. Boyer, L. Chupin, P. Fabrie : [Numerical study of viscoelastic mixtures through a Cahn-Hilliard flow model](#), European Journal of Mechanics - B Fluids Vol. 23 no 5, pp 759-780 (2004) [Published on-line](#)
6. B. Andreianov, F. Boyer, F. Hubert : [Finite-volume schemes for the p-laplacian on cartesian meshes](#), M2AN, Vol. 38, N°6, pp. 931-959 (2004) [Published on-line](#)
7. B. Andreianov, F. Boyer, F. Hubert : [Besov regularity and new error estimates for finite volume approximations of the p-laplacian](#), Numerische Mathematik, Vol. 100, N°4, pp. 565 - 592 (2005) [Published on-line](#)
8. F. Boyer : [Trace theorems and spatial continuity properties for the solutions of the transport equation](#), Differential and Integral Equations Vol. 18, N°8, pp. 891-934 (2005)

9. B. Andreianov, F. Boyer, F. Hubert : [On the finite volume approximation of regular solutions of the p-laplacian](#), IMA Journal of Numerical Analysis Vol. 26, N°3, pp. 472-502 (2006) [Published on-line](#)
10. F. Boyer, C. Lapuerta : [Study of a three component Cahn-Hilliard flow model](#), M2AN Vol. 40 no 4, pp. 653--687,(2006) [Published on-line](#)
11. B. Andreianov, F. Boyer, F. Hubert : [Discrete duality finite volume schemes for Leray-Lions type elliptic problems on general 2D meshes](#), Numerical Methods for PDEs Vol. 23, N°1, pp 145--195, (2007) [Published on-line](#)
12. B. Andreianov, F. Boyer, F. Hubert : [Discrete Besov framework for finite volume approximation of the p-laplacian on non-uniform cartesian grids](#), ESAIM Proceedings, Vol. 18, pp. 1--10, (2007) [Published on-line](#)
13. F. Boyer, P. Fabrie : [Outflow boundary conditions for the incompressible non-homogeneous Navier-Stokes equations](#), Discrete and Continuous Dynamical Systems - B, Vol. 7, N°2, pp. 219-250, (2007) [Published on-line](#)
14. F. Boyer, F. Hubert : [Finite volume method for 2D linear and nonlinear elliptic problems with discontinuities](#), SIAM Journal on Numerical Analysis, Vol. 46, N° 6, pp. 3032--3070, (2008) [Published on-line](#)
15. P. Angot, F. Boyer, F. Hubert : [Asymptotic and numerical modelling of flows in fractured porous media](#), M2AN Vol. 43 no 2, pp. 239-275, (2009) [Published on-line](#)
16. F. Boyer, C. Lapuerta, S. Minjeaud, B. Piar : [A local adaptive refinement method with multigrid preconditioning illustrated by multiphase flows simulations](#), ESAIM Proceedings, Vol. 27, pp. 15--53 (2009) [Published on-line](#)
17. F. Boyer, F. Hubert, S. Krell : [Non-overlapping Schwarz algorithm for solving 2D m-DDFV schemes](#), IMA Journal on Numerical Analysis, Vol. 30, no 4, pp. 1062-1100, (2010) [Published on-line](#)
18. F. Boyer, C. Lapuerta, S. Minjeaud, B. Piar, M. Quintard : [Cahn-Hilliard / Navier-Stokes model for the simulation of three-phase flows](#), Transport in Porous Media, Volume 82, Issue 3, pp. 463-483 (2010) [Published on-line](#)
19. F. Boyer, F. Hubert, J. Le Rousseau : [Discrete Carleman estimates for elliptic operators and uniform controllability of semi-discretized parabolic equations](#), Journal de Mathématiques Pures et Appliquées, Vol. 93, no 3, pp. 240-273 (2010) [Published on-line](#)
20. F. Boyer, F. Hubert, J. Le Rousseau : [Discrete Carleman estimates for elliptic operators in arbitrary dimension and applications](#), SIAM Journal on Control and Optimization, Vol. 48, No 8, pp.5357-5397 (2010) [Published on-line](#)
21. F. Boyer, S. Minjeaud : [Numerical schemes for a three component Cahn-Hilliard model](#), M2AN Vol. 45, no 4, pp. 697-738 (2011) [Published on-line](#)
22. F. Boyer, F. Hubert, J. Le Rousseau : [Uniform null-controllability properties for space/time-discretized parabolic equations](#), Numerische Mathematik, Vol. 118, no 4, pp. 601-661 (2011) [Published on-line](#)
23. F. Boyer : [Analysis of the upwind finite volume method for general initial and boundary value transport problems](#), IMA Journal on Numerical Analysis, Vol. 32 no 4, pp. 1404-1439 (2012) [Published on-line](#)
24. F. Boyer, J. Le Rousseau : [Carleman estimates for semi-discrete parabolic operators and application to the controllability of semi-linear semi-discrete parabolic equations](#), Annales de l'IHP - Analyse non linéaire, Vol. 31, Issue 5, pp. 1035-1078, (2014) [Preprint HAL](#)[Published on-line](#)
25. F. Boyer, F. Dardalhon, C. Lapuerta, J.C. Latché : [Stability of a Crank-Nicolson pressure correction scheme based on staggered discretizations](#), International Journal for Numerical Methods in Fluids, Vol. 74, Issue 1, pp. 34-58, (2014) [Preprint HAL](#)[Published on-line](#)
26. F. Boyer, S. Krell, F. Nabet : [Inf-Sup stability of the Discrete Duality Finite Volume method for the Stokes problem](#), Math. Comp., Vol. 84, pp. 2705-2742, (2015) [Preprint HAL](#)[Published on-line](#)

27. F. Boyer : On the penalised HUM approach and its applications to the numerical approximation of null-controls for parabolic problems, ESAIM Proceedings, Vol. 41, pp. 15-58, (2013) [Preprint HALPublished on-line](#)
28. F. Boyer, S. Minjeaud : Hierarchy of consistent n-component Cahn-Hilliard systems, M3AS Vol. 24, No 14, pp. 2885-2928 (2014) [Preprint HALPublished on-line](#)
29. F. Boyer, G. Olive : Approximate controllability conditions for some linear 1D parabolic systems with space-dependent coefficients, Mathematical Control and Related Fields, Vol. 4, No. 3, pp. 263-287 (2014) [Preprint HALPublished on-line](#)
30. A. Benabdallah, F. Boyer, M. González-Burgos, G. Olive : Sharp estimates of the one-dimensional boundary control cost for parabolic systems and application to the n -dimensional boundary null-controllability in cylindrical domains, SIAM Journal on Control and Optimization, Vol. 52, No. 5, pp. 2970-3001 (2014) [Preprint HALPublished on-line](#)
31. P. Bousquet, F. Boyer, F. Nabet : On a functional inequality arising in the analysis of finite-volume methods, Calcolo, Vol. 53, No. 3, pp. 363-397 (2016) [Preprint HALPublished on-line](#)
32. F. Boyer, F. Nabet : A DDFV method for a Cahn-Hilliard-Stokes phase field model with dynamic boundary conditions, M2AN, Vol. 51, No. 5, pp. 1691--1731 (2017) [Preprint HALPublished on-line](#)
33. T. Blanc, M. Bostan, F. Boyer : Asymptotic analysis of parabolic equations with stiff transport terms by a multi-scale approach, Discrete and Continuous Dynamical System - Serie A, Vol. 37, No. 9, pp. 4637-4676 (2017) [Preprint HALPublished on-line](#)
34. N. Aguillon, F. Boyer : Error estimate for the upwind scheme for the linear transport equation with boundary data, IMA Journal on Numerical Analysis, Vol. 38, Issue 2, pp. 669-719 (2018) [Preprint HALPublished on-line](#)
35. D. Allonsius, F. Boyer, M. Morancey : Spectral analysis of discrete elliptic operators and applications in control theory, Numerische Mathematik, Vol. 140, No 4, pp. 857-911 (2018) [Preprint HALPublished on-line](#)
36. F. Boyer, V. Hernandez-Santamaria, L. de Teresa : Insensitizing controls for a semilinear parabolic equation : a numerical approach, Mathematical Control and Related Fields, Vol. 9, No 1, pp. 117-158. (2019) [Preprint HALPublished on-line](#)
37. D. Allonsius, F. Boyer : Boundary null-controllability of semi-discrete coupled parabolic systems in some multi-dimensional geometries, Mathematical Control and Related Fields, Vol. 10, No 2, pp.217-256. (2020) [Preprint HALPublished on-line](#)
38. A. Benabdallah, F. Boyer, M. Morancey : A block moment method to handle spectral condensation phenomenon in parabolic control problems, Annales Henri Lebesgue, Vol. 3, pp. 717-793 (2020) [Preprint HALPublished on-line](#)
39. F. Boyer, V. Hernandez-Santamaria : Carleman estimates for time-discrete parabolic equations and applications to controllability, ESAIM Control and Calcul of Variations, Vol. 26, (2020) [Preprint HALPublished on-line](#)
40. K. Bhandari, F. Boyer : Boundary null-controllability of coupled parabolic system with Robin conditions, Evolution Equations and Control Theory, Vol. 10, No 1, pp. 61-102, (2021) [Preprint HALPublished on-line](#)
41. D. Allonsius, F. Boyer, M. Morancey : Analysis of the null-controllability of degenerate parabolic systems of Grushin type via the moments method, Journal of Evolution Equations, Vol. 21, pp. 4799-4843 (2021) [Preprint HALPublished on-line](#)
42. K. Bhandari, F. Boyer, V. Hernandez-Santamaria : Boundary null-controllability of 1-D coupled parabolic systems with Kirchhoff-type condition, Mathematics of Control, Signals, and Systems, Vol. 33, No 3, pp. 413-471, (2021) [Preprint HALPublished on-line](#)
43. F. Boyer, G. Olive : Boundary null-controllability of some multi-dimensional linear parabolic systems by the moment method, Annales de l'Institut Fourier, 74 (5), pp. 1943-2012 (2024) [Preprint HALPublished on-line](#)
44. K. Bhandari, F. Boyer : Local exact controllability to the steady states of a parabolic system with coupled nonlinear boundary conditions, Mathematical Control and Related Fields, Vol. 14, No 3,

- pp. 1086-1127 (2024) [Preprint HALPublished on-line](#)
45. F. Boyer, M. Morancey : Analysis of non scalar control problems for parabolic systems by the block moment method, Comptes Rendus Mathématiques, Volume 361, pp. 1191-1248, (2023) [Preprint HALPublished on-line](#)
 46. D. Pastor-Alonso, M. Berg, F. Boyer, N. Formin-Thuenamnn, M. Quintard, Y. Davit, S. Lorthois : Modeling oxygen transport in the brain: en efficient coarse-grid approach to capture perivascular gradients in the parenchyma, PLoS Computational Biology, 20 (5), e1011973 (2024) [Preprint HALPublished on-line](#)
 47. F. Boyer, M. Morancey : Distributed null-controllability of some 1D cascade parabolic systems, to appear in Annales Mathématiques Blaise Pascal [Preprint HAL](#)
 48. F. Boyer, V. Hernandez-Santamaria : Boundary controllability of time-discrete parabolic systems: a moments method approach, submitted [Preprint HAL](#)
 49. H. Parada, F. Boyer : Null controllability of coupled parabolic equations with first-order perturbations, submitted [Preprint HAL](#)
 50. F. Boyer, M. Fournié, D. Gajardo, J.P. Raymond : Study of the stationary Stokes system with mixed boundary conditions in non-convex curvilinear polygonal domains, submitted [Preprint HAL](#)
 51. F. Boyer, M. Fournié, D. Gajardo, J.P. Raymond : Analysis of a Fluid-Structure Interaction system involving an Euler-Bernoulli beam model with a free end boundary condition, submitted [Preprint HAL](#)

Thèse

- F. Boyer : [Ecoulements diphasiques de type Cahn-Hilliard](#), Thèse de l'université Bordeaux 1, Mars 2001

Habilitation à diriger des recherches

- F. Boyer : [Modélisation, Analyse et Approximation numérique en mécanique des fluides](#), Habilitation de l'université de Provence, Octobre 2006

Quelques exposés

1. [A propos de l'équation de transport : problèmes de traces, régularité des solutions](#), Séminaire du LMC, Grenoble, Février 2005
2. [Autour des solutions renormalisées de l'équation de transport](#), Séminaire du laboratoire MAPMO, Orléans, Décembre 2006
3. [De la modélisation à la simulation numérique. Illustrations sur un exemple simple mais instructif](#), Rencontres entre profs du secondaire et le CMI, Janvier 2007
4. [Simulation numérique directe d'écoulements triphasiques à l'aide de modèles à interfaces diffuses](#), 20ième séminaire de mécanique des fluides CEA-GAMNI, IHP Paris, Janvier 2008 [L'enregistrement vidéo de cet exposé est disponible ici](#)
5. [Volumes finis pour la résolution de problèmes elliptiques hétérogènes anisotropes sur maillages généraux](#), Ecole d'été du GDR CHANT, Roscoff, Août 2008
6. [Sur l'approximation numérique d'un contrôle à zéro de l'équation de la chaleur](#), Journée thématique du MAPMO, Orléans, Juin 2009
7. Mini-cours de 6h : Volumes finis pour la résolution de problèmes elliptiques hétérogènes

- anisotropes sur maillages généraux, Ecole d'été du GDR MOAD, Fréjus, Septembre 2009
- [Partie 1 : Introduction. Le schéma VF4](#)
 - [Partie 2 : Revue des schémas récents. Benchmark](#)
 - [Partie 3 : Les méthodes DDFV sur les problèmes scalaires et sur Stokes](#)
8. [Mini-cours de 6h : Méthodes de volumes finis pour les écoulements en milieux poreux](#), Ecole d'été Milieux poreux du LEM2I, Tipaza, Algérie, Juin 2010
 9. [Full discretization of distributed control problems for parabolic equations](#), Conférence [Control of parabolic equations and systems, applications to fluids](#), IHP, Paris, Novembre 2010.
 10. [A propos du contrôle et de l'optimisation de trajectoires](#), Exposé devant les élèves de Classes Préparatoires du Lycée Militaire d'Aix-en-Provence, Décembre 2010
 11. [Numerical methods for the simulation of a diffuse interface model for three-phase flows](#), Workshop [Phase field models in fluid mechanics](#), Ratisbonne, Allemagne, Février 2011
 12. [Solutions renormalisées du transport et schéma upwind](#), Séminaire MIP Toulouse, Janvier 2012
 13. [On the numerical approximation of control problems for parabolic equations and systems](#), CANUM 2012, Superbesse
 14. [About The HUM method and its application in particular to the numerical approximation of controls of PDEs](#), Séminaire MIP Toulouse, Février 2015
 15. [About The HUM method and its application to the numerical approximation of controls of PDEs](#), Mini-cours dans la conférence 'Contrôle et problèmes inverses pour les EDPs', Besançon, Mars 2015
 16. [Controllability of parabolic PDEs : methods - results - open problems](#), Séminaire DEFI - MEDISIM - POEMS, CMAP, Ecole polytechnique, Mars 2017

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