# Raphaele Herbin

List of Publications by Year
in descending order



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|---|---|---|---|
| 127 papers | 4,445 citations | 147566 31 h-index | 110170 64 g-index |
| 134 all docs | 134 docs citations | 134 times ranked | 1753 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | A consistent quasiâ€“second-order staggered scheme for the two-dimensional shallow water equations. IMA Journal of Numerical Analysis, 2023, 43, 99-143. | 1.5 | 4 |
| 2 | Laxâ€“Wendroff consistency of finite volume schemes for systems of non linear conservation laws: extension to staggered schemes. SeMA Journal, 2022, 79, 333-354. | 1.0 | 6 |
| 3 | Non-conforming Finite Elements on Polytopal Meshes. SEMA SIMAI Springer Series, 2021, , 1-35. | 0.4 | 1 |
| 4 | A Staggered Pressure Correction Numerical Scheme to Compute a Travelling Reactive Interface in a Partially Premixed Mixture. SEMA SIMAI Springer Series, 2021, , 97-129. | 0.4 | 0 |
| 5 | Consistent Internal Energy Based Schemes for the Compressible Euler Equations. SEMA SIMAI Springer Series, 2021, , 119-154. | 0.4 | 1 |
| 6 | Low Mach number limit of some staggered schemes for compressible barotropic flows. Mathematics of Computation, 2021, 90, 1039-1087. | 1.1 | 6 |
| 7 | Modelling of a spherical deflagration at constant speed. Computational and Applied Mathematics, 2021, 40, 1. | 1.0 | 0 |
| 8 | A cell-centred pressure-correction scheme for the compressible Euler equations. IMA Journal of Numerical Analysis, 2020, 40, 1792-1837. | 1.5 | 6 |
| 9 | A unified analysis of elliptic problems with various boundary conditions and their approximation. , 2020, 70, 339-368. | | 1 |
| 10 | Conservativity and weak consistency of a class of staggered finite volume methods for the Euler equations. Mathematics of Computation, 2020, 90, 1155-1177. | 1.1 | 5 |
| 11 | The Gradient Discretisation Method for Linear Advection Problems. Computational Methods in Applied Mathematics, 2020, 20, 437-458. | 0.4 | 3 |
| 12 | A Second Order Consistent MAC Scheme for the Shallow Water Equations on Non Uniform Grids. Springer Proceedings in Mathematics and Statistics, 2020, , 123-131. | 0.1 | 2 |
| 13 | MUSCL Discretization for the Fluid Flow Convection Operator on Staggered Meshes. Springer Proceedings in Mathematics and Statistics, 2020, , 497-505. | 0.1 | 0 |
| 14 | On the weak consistency of finite volumes schemes for conservation laws on general meshes. SeMA Journal, 2019, 76, 581-594. | 1.0 | 11 |
| 15 | An Introduction to the Gradient Discretisation Method. Lecture Notes in Computational Science and Engineering, 2019, , 451-459. | 0.1 | 0 |
| 16 | A Class of Staggered Schemes for the Compressible Euler Equations. Lecture Notes in Computer Science, 2019, , 15-26. | 1.0 | 1 |
| 17 | Convergence of the Marker-and-Cell Scheme for the Incompressible Navierâ€“Stokes Equations on Non-uniform Grids. Foundations of Computational Mathematics, 2018, 18, 249-289. | 1.5 | 21 |
| 18 | Consistent segregated staggered schemes with explicit steps for the isentropic and full Euler equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2018, 52, 893-944. | 0.8 | 20 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | The Gradient Discretisation Method. MathÃ©matiques Et Applications, 2018, , . | 0.6 | 78 |
| 20 | A MUSCL-type segregated â€“ explicit staggered scheme for the Euler equations. Computers and Fluids, 2018, 175, 91-110. | 1.3 | 11 |
| 21 | Non Degenerate Parabolic Problems. MathÃ©matiques Et Applications, 2018, , 123-166. | 0.6 | 0 |
| 22 | Nodal Mimetic Finite Difference Methods. MathÃ©matiques Et Applications, 2018, , 377-393. | 0.6 | 0 |
| 23 | Non-conforming Finite Element Methods. MathÃ©matiques Et Applications, 2018, , 285-305. | 0.6 | 1 |
| 24 | Analysis Tools for Gradient Discretisations. MathÃ©matiques Et Applications, 2018, , 205-262. | 0.6 | 2 |
| 25 | Dirichlet Boundary Conditions. MathÃ©matiques Et Applications, 2018, , 17-65. | 0.6 | 1 |
| 26 | Time-Dependent GDM. MathÃ©matiques Et Applications, 2018, , 101-121. | 0.6 | 0 |
| 27 | Motivation and Basic Ideas. MathÃ©matiques Et Applications, 2018, , 3-16. | 0.6 | 0 |
| 28 | The Multi-point Flux Approximation MPFA-O Scheme. MathÃ©matiques Et Applications, 2018, , 343-351. | 0.6 | 1 |
| 29 | Neumann, Fourier and Mixed Boundary Conditions. MathÃ©matiques Et Applications, 2018, , 67-97. | 0.6 | 0 |
| 30 | Discontinuous Galerkin Methods. MathÃ©matiques Et Applications, 2018, , 325-341. | 0.6 | 0 |
| 31 | Degenerate Parabolic Problems. MathÃ©matiques Et Applications, 2018, , 167-202. | 0.6 | 0 |
| 32 | Convergence of the marker-and-cell scheme for the semi-stationary compressible Stokes problem. Mathematics and Computers in Simulation, 2017, 137, 325-349. | 2.4 | 5 |
| 33 | Convergence of the MAC scheme for the compressible stationary Navier-Stokes equations. Mathematics of Computation, 2017, 87, 1127-1163. | 1.1 | 7 |
| 34 | Low Mach Number Limit of a Pressure Correction MAC Scheme for Compressible Barotropic Flows. Springer Proceedings in Mathematics and Statistics, 2017, , 255-263. | 0.1 | 1 |
| 35 | An Error Estimate for the Approximation of Linear Parabolic Equations by the Gradient Discretization Method. Springer Proceedings in Mathematics and Statistics, 2017, , 371-379. | 0.1 | 3 |
| 36 | Results with a Locally Refined MAC-Like Schemeâ€”Benchmark Session. Springer Proceedings in Mathematics and Statistics, 2017, , 125-139. | 0.1 | 0 |

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|---|---|---|---|
| 37 | Two Models for the Computation of Laminar Flames in Dust Clouds. Springer Proceedings in Mathematics and Statistics, 2017, , 285-293. | 0.1 | 0 |
| 38 | Convergence of the MAC Scheme for Variable Density Flows. Springer Proceedings in Mathematics and Statistics, 2017, , 265-273. | 0.1 | 1 |
| 39 | Gradient schemes: Generic tools for the numerical analysis of diffusion equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2016, 50, 749-781. | 0.8 | 47 |
| 40 | Analysis of a fractional-step scheme for the P $$_1$$ 1 radiative diffusion model. Computational and Applied Mathematics, 2016, 35, 135-151. | 1.3 | 3 |
| 41 | Error estimates for a numerical approximation to the compressible barotropic Navierâ€“Stokes equations. IMA Journal of Numerical Analysis, 2016, 36, 543-592. | 1.5 | 44 |
| 42 | Applications of approximate gradient schemes for nonlinear parabolic equations. Applications of Mathematics, 2015, 60, 135-156. | 0.9 | 4 |
| 43 | xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd" | 2.4 | 4 |
| 44 | An extension of the MAC scheme to locally refined meshes: convergence analysis for the full tensor time-dependent Navierâ€“Stokes equations. Calcolo, 2015, 52, 69-107. | 0.6 | 14 |
| 45 | Gradient schemes for twoâ€phase flow in heterogeneous porous media and Richards equation. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2014, 94, 560-585. | 0.9 | 49 |
| 46 | On some implicit and semi-implicit staggered schemes for the shallow water and Euler equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2014, 48, 1807-1857. | 0.8 | 46 |
| 47 | TP or not TP, that is the question. Computational Geosciences, 2014, 18, 285-296. | 1.2 | 38 |
| 48 | Convergence of the MAC Scheme for the Steady-State Incompressible Navier-Stokes Equations on Non-uniform Grids. Springer Proceedings in Mathematics and Statistics, 2014, , 343-351. | 0.1 | 6 |
| 49 | A formally secondâ€order cell centred scheme for convectionâ€“diffusion equations on general grids. International Journal for Numerical Methods in Fluids, 2013, 71, 873-890. | 0.9 | 16 |
| 50 | Pressure correction staggered schemes for barotropic one-phase and two-phase flows. Computers and Fluids, 2013, 88, 524-542. | 1.3 | 13 |
| 51 | GRADIENT SCHEMES: A GENERIC FRAMEWORK FOR THE DISCRETISATION OF LINEAR, NONLINEAR AND NONLOCAL ELLIPTIC AND PARABOLIC EQUATIONS. Mathematical Models and Methods in Applied Sciences, 2013, 23, 2395-2432. | 1.7 | 96 |
| 52 | Discontinuous Galerkin Discretization and $hp$-Refinement for the Resolution of the Neutron Transport Equation. SIAM Journal of Scientific Computing, 2013, 35, A936-A956. | 1.3 | 10 |
| 53 | Explicit staggered schemes for the compressible euler equations. ESAIM: Proceedings and Surveys, 2013, 40, 83-102. | 0.4 | 26 |
| 54 | Small-stencil 3D schemes for diffusive flows in porous media. ESAIM: Mathematical Modelling and Numerical Analysis, 2012, 46, 265-290. | 0.8 | 139 |

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|---|---|---|---|
| 55 | Finite volume schemes for the biharmonic problem on general meshes. Mathematics of Computation, 2012, 81, 2019-2048. | 1.1 | 25 |
| 56 | Vertex-centred discretization of multiphase compositional Darcy flows on general meshes. Computational Geosciences, 2012, 16, 987-1005. | 1.2 | 66 |
| 57 | Staggered schemes for all speed flows. ESAIM: Proceedings and Surveys, 2012, 35, 122-150. | 0.4 | 12 |
| 58 | Vertex centred Discretization of Two-Phase Darcy flows on General Meshes. ESAIM: Proceedings and Surveys, 2012, 35, 59-78. | 0.4 | 12 |
| 59 | W1,q stability of the Fortin operator for the MAC scheme. Calcolo, 2012, 49, 63-71. | 0.6 | 18 |
| 60 | Vertex-centred Discretization of Multiphase Compositional Darcy Flows on General Meshes. , 2012, , . | | 5 |
| 61 | Gradient Scheme Approximations for Diffusion Problems. Springer Proceedings in Mathematics, 2011, , 439-447. | 0.5 | 13 |
| 62 | 3D Benchmark on Discretization Schemes for Anisotropic Diffusion Problems on General Grids. Springer Proceedings in Mathematics, 2011, , 895-930. | 0.5 | 44 |
| 63 | Approximation of the biharmonic problem using P1 finite elements. Journal of Numerical Mathematics, 2011, 19, 1-26. | 1.8 | 6 |
| 64 | A discretization of the phase mass balance in fractional step algorithms for the drift-flux model. IMA Journal of Numerical Analysis, 2011, 31, 116-146. | 1.5 | 18 |
| 65 | â€œA Note on the Entropy Solutions of the Hydrodynamic Model of Traffic Flowâ€•Revisited. Transportation Science, 2011, 45, 138-142. | 2.6 | 3 |
| 66 | Multiphase Flow in Porous Media Using the VAG Scheme. Springer Proceedings in Mathematics, 2011, , 409-417. | 0.5 | 3 |
| 67 | Gradient Schemes for Image Processing. Springer Proceedings in Mathematics, 2011, , 429-437. | 0.5 | 7 |
| 68 | Staggered discretizations, pressure correction schemes and all speed barotropic flows. Springer Proceedings in Mathematics, 2011, , 839-855. | 0.5 | 14 |
| 69 | Benchmark 3D: the SUSHI Scheme. Springer Proceedings in Mathematics, 2011, , 1005-1012. | 0.5 | 2 |
| 70 | Benchmark 3D: the VAG scheme. Springer Proceedings in Mathematics, 2011, , 1013-1022. | 0.5 | 9 |
| 71 | Playing with Burgersâ€™s Equation. Springer Proceedings in Mathematics, 2011, , 523-531. | 0.5 | 1 |
| 72 | An unconditionally stable finite element-finite volume pressure correction scheme for the drift-flux model. ESAIM: Mathematical Modelling and Numerical Analysis, 2010, 44, 251-287. | 0.8 | 7 |

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|---|---|---|---|
| 73 | Approximation of the biharmonic problem using piecewise linear finite elements. Comptes Rendus Mathematique, 2010, 348, 1283-1286. | 0.1 | 2 |
| 74 | A UNIFIED APPROACH TO MIMETIC FINITE DIFFERENCE, HYBRID FINITE VOLUME AND MIXED FINITE VOLUME METHODS. Mathematical Models and Methods in Applied Sciences, 2010, 20, 265-295. | 1.7 | 173 |
| 75 | Convergence of the MAC Scheme for the Compressible Stokes Equations. SIAM Journal on Numerical Analysis, 2010, 48, 2218-2246. | 1.1 | 33 |
| 76 | Discretization of heterogeneous and anisotropic diffusion problems on general nonconforming meshes SUSHI: a scheme using stabilization and hybrid interfaces. IMA Journal of Numerical Analysis, 2010, 30, 1009-1043. | 1.5 | 258 |
| 77 | Cell centred discretisation of non linear elliptic problems on general multidimensional polyhedral grids. Journal of Numerical Mathematics, 2009, 17, . | 1.8 | 15 |
| 78 | A fast precipitation and dissolution reaction for a reactionâ€“diffusion system arising in a porous medium. Nonlinear Analysis: Real World Applications, 2009, 10, 629-638. | 0.9 | 6 |
| 79 | A collocated finite volume scheme to solve free convection for general non-conforming grids. Journal of Computational Physics, 2009, 228, 2296-2311. | 1.9 | 9 |
| 80 | A nine-point finite volume scheme for the simulation of diffusion in heterogeneous media. Comptes Rendus Mathematique, 2009, 347, 673-676. | 0.1 | 65 |
| 81 | Convergence analysis of a locally stabilized collocated finite volume scheme for incompressible flows. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 889-927. | 0.8 | 7 |
| 82 | A convergent finite element-finite volume scheme for the compressible Stokes problem. Part I: The isothermal case. Mathematics of Computation, 2009, 78, 1333-1352. | 1.1 | 48 |
| 83 | A convergent finite element-finite volume scheme for the compressible Stokes problem. Part II: the isentropic case. Mathematics of Computation, 2009, 79, 649-675. | 1.1 | 31 |
| 84 | Collocated finite volume schemes for the simulation of natural convective flows on unstructured meshes. International Journal for Numerical Methods in Fluids, 2008, 56, 2045-2068. | 0.9 | 6 |
| 85 | An unconditionally stable pressure correction scheme for the compressible barotropic Navier-Stokes equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2008, 42, 303-331. | 0.8 | 56 |
| 86 | Convergence Analysis of a Colocated Finite Volume Scheme for the Incompressible Navierâ€“Stokes Equations on General 2D or 3D Meshes. SIAM Journal on Numerical Analysis, 2007, 45, 1-36. | 1.1 | 37 |
| 87 | Discretization of coupled heat and electrical diffusion problems by finite-element and finite-volume methods. IMA Journal of Numerical Analysis, 2007, 28, 469-495. | 1.5 | 17 |
| 88 | Diffusion with dissolution and precipitation in a porous medium: Mathematical analysis and numerical approximation of a simplified model. ESAIM: Mathematical Modelling and Numerical Analysis, 2007, 41, 975-1000. | 0.8 | 18 |
| 89 | A new finite volume scheme for anisotropic diffusion problems on general grids: convergence analysis. Comptes Rendus Mathematique, 2007, 344, 403-406. | 0.1 | 46 |
| 90 | A new colocated finite volume scheme for the incompressible Navierâ€“Stokes equations on general non matching grids. Comptes Rendus Mathematique, 2007, 344, 659-662. | 0.1 | 15 |

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| 91 | Combined triangular FVâ€triangular FE method for nonlinear convectionâ€diffusion problems. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2007, 87, 499-517. | 0.9 | 8 |
| 92 | On the stability of colocated clustered finite volume simplicial discretizations for the 2D Stokes problem. Calcolo, 2007, 44, 219-234. | 0.6 | 5 |
| 93 | A cell-centred finite-volume approximation for anisotropic diffusion operators on unstructured meshes in any space dimension. IMA Journal of Numerical Analysis, 2006, 26, 326-353. | 1.5 | 89 |
| 94 | On a stabilized colocated Finite Volume scheme for the Stokes problem. ESAIM: Mathematical Modelling and Numerical Analysis, 2006, 40, 501-527. | 0.8 | 26 |
| 95 | On the Discretization of the Coupled Heat and Electrical Diffusion Problems. , 2006, , 1-15. | | 2 |
| 96 | Lateral Diffusion of CO2 in Leaves Is Not Sufficient to Support Photosynthesis. Plant Physiology, 2005, 139, 254-266. | 2.3 | 75 |
| 97 | An error estimate for finite volume methods for the Stokes equations on equilateral triangular meshes. Numerical Methods for Partial Differential Equations, 2004, 20, 907-918. | 2.0 | 16 |
| 98 | Convergence of linear finite elements for diffusion equations with measure data. Comptes Rendus Mathematique, 2004, 338, 81-84. | 0.1 | 9 |
| 99 | A finite volume scheme for anisotropic diffusion problems. Comptes Rendus Mathematique, 2004, 339, 299-302. | 0.1 | 16 |
| 100 | A cell-centered finite volume scheme on general meshes for the Stokes equations in two space dimensions. Comptes Rendus Mathematique, 2003, 337, 125-128. | 0.1 | 6 |
| 101 | A Finite Volume Scheme for a Noncoercive Elliptic Equation with Measure Data. SIAM Journal on Numerical Analysis, 2003, 41, 1997-2031. | 1.1 | 33 |
| 102 | Mathematical study of a petroleum-engineering scheme. ESAIM: Mathematical Modelling and Numerical Analysis, 2003, 37, 937-972. | 0.8 | 78 |
| 103 | A Monotonic Method for the Numerical Solution of Some Free Boundary Value Problems. SIAM Journal on Numerical Analysis, 2002, 40, 2292-2310. | 1.1 | 6 |
| 104 | Convergence of a finite volume scheme for nonlinear degenerate parabolic equations. Numerische Mathematik, 2002, 92, 41-82. | 0.9 | 127 |
| 105 | Finite volume approximation of a class of variational inequalities. IMA Journal of Numerical Analysis, 2001, 21, 553-585. | 1.5 | 15 |
| 106 | Discrete Sobolev inequalities andLperror estimates for finite volume solutions of convection diffusion equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2001, 35, 767-778. | 0.8 | 39 |
| 107 | Finite volume approximation of elliptic problems and convergence of an approximate gradient. Applied Numerical Mathematics, 2001, 37, 31-53. | 1.2 | 80 |
| 108 | APPROXIMATION BY THE FINITE VOLUME METHOD OF AN ELLIPTIC-PARABOLIC EQUATION ARISING IN ENVIRONMENTAL STUDIES. Mathematical Models and Methods in Applied Sciences, 2001, 11, 1505-1528. | 1.7 | 18 |

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| 109 | Numerical approximation of an elliptic-parabolic equation arising in environment. Computing and Visualization in Science, 2000, 3, 33-38. | 1.2 | 2 |
| 110 | Finite volume methods. Handbook of Numerical Analysis, 2000, 7, 713-1018. | 0.9 | 1,023 |
| 111 | Error Estimates on the Approximate Finite Volume Solution of Convection Diffusion Equations with General Boundary Conditions. SIAM Journal on Numerical Analysis, 2000, 37, 1935-1972. | 1.1 | 64 |
| 112 | The simulation of the transport of contaminants in groundwater flow: error estimates for a finite volume scheme. Theory and Applications of Transport in Porous Media, 2000, , 3-27. | 0.4 | 0 |
| 113 | Convergence of finite volume schemes for semilinear convection diffusion equations. Numerische Mathematik, 1999, 82, 91-116. | 0.9 | 64 |
| 114 | Error estimates for the approximate solutions of a nonlinear hyperbolic equation given by finite volume schemes. IMA Journal of Numerical Analysis, 1998, 18, 563-594. | 1.5 | 97 |
| 115 | Three-dimensional numerical simulation for various geometries of solid oxide fuel cells. Journal of Power Sources, 1996, 58, 109-122. | 4.0 | 403 |
| 116 | SchÃ©ma De Volumes Finis en Interaction Fluide/Structure: FaisabilitÃ© et Application L'Ã©coulement Vasculaire. Archives of Physiology and Biochemistry, 1995, 103, C76-C76. | 1.0 | 1 |
| 117 | An error estimate for a finite volume scheme for a diffusion-convection problem on a triangular mesh. Numerical Methods for Partial Differential Equations, 1995, 11, 165-173. | 2.0 | 94 |
| 118 | Convergence of a Finite Volume Scheme for a Nonlinear Hyperbolic Equation. , 1995, , 61-70. | | 1 |
| 119 | Existence of a solution to a coupled elliptic system arising in the mathematical modelling of fuel cells. , 1995, , 133-142. | | 0 |
| 120 | A Four Point Finite Volume Scheme for a Diffusion Convection Problem on a Triangular Mesh. , 1995, , 97-106. | | 0 |
| 121 | Existence of a solution to a coupled elliptic system. Applied Mathematics Letters, 1994, 7, 49-55. | 1.5 | 48 |
| 122 | Comparison between finite volume and finite element methods for an elliptic system arising in electrochemical engineering. Computer Methods in Applied Mechanics and Engineering, 1994, 115, 315-338. | 3.4 | 30 |
| 123 | Convergence of an upstream finite volume scheme for a nonlinear hyperbolic equation on a triangular mesh. Numerische Mathematik, 1993, 66, 139-157. | 0.9 | 41 |
| 124 | Parallel implementation of a multigrid method on the experimental 1CAP supercomputer. Applied Mathematics and Computation, 1988, 27, 281-312. | 1.4 | 6 |
| 125 | Approximation of Obstacle Problems by Continuation Methods. SIAM Journal on Numerical Analysis, 1988, 25, 1409-1431. | 1.1 | 13 |
| 126 | An unconditionally stable staggered pressure correction scheme for the compressible Navier-Stokes equations. SMAI Journal of Computational Mathematics, 0, 2, 51-97. | 0.0 | 30 |

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|---|---|---|---|
| 127 | Antiâ€diffusive alternateâ€directions schemes for the transport of step functions. International Journal for Numerical Methods in Fluids, 0, , . | 0.9 | 0 |