Curriculum vitae

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Home Page 3 (as reviewer for zbMATH): https://zbmath.org/authors/?q=rv%3A11949
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Plan of this vitae

1 Research Interests

I have worked on the following items:

- Fractional Partial Differential Equations and their Numerical Methods.
- Inverse Problems and their Approximations.
- Shallow Water Problem and its Numerical Approximation.
- Bingham pipe flows and their Approximations: interested with now.
- Simulation using COMSOL Multiphysics Software
- Simulation for Thermohaline Convective Problems
- Finite Volume and Finite Element Methods
- Improving Convergence Order of these two previous Methods
- Numerical Schemes Approximating Coupled Problems with Irregular Data
- Oblique Derivative Problems and their Approximations
- Defect Correction
- Domain Decomposition
- Volume Approximation for Thermohaline Convective Problems
- Improving Converegence Order of Finite Volume Approximate Solutions of Hyperbolic Equations
- Discontinuous Galerkin finite element method
- Uses of COMSOL Multiphysics (Femblab)
- Numerical approximation for singular perturbed equations
- Higher order in finite volume methods for time–independent Navier Stokes equations
- Numerical approximation of equations arising in Physics and Mechanics, e.g. Schrödinger equation

2 Education and Diplomas

- **Qualification for position Professor of Universities in France "Qualification pour Poste Professeur des Universités en France, Section 26"**. In February 8th, 2021. "**Numero de Qualification est 21126189421**."
- **French Habilitation (HDR)**. May 19th 2016: Defended French HDR in the Aix Marseille University (AMU), France.
  - Contribution à l' Etude de Convergence de Schémas de Discretisation d'Equations aux Dérivées Partielles.
  - First Expert (Rapporteur Initial / Expert): Professor Georges Marius COCOU
  - Referees: Professors R. Eymard, C. Galusinski, M.-H. Vignal
  - Tutor: Professor R. Herbin
- **Algerian Habilitation**. December 9th 2009: Habilitation (HDR) at the department of Mathematics of Annaba-University in Algeria.
  Experts (Referees) of my Habilitation:

  - Prof. Robert Eymard, University of Marne la Vallée, Paris, France
  - Prof. Fayssal Benkhaldoun, University of Paris Sud, Paris, France
  - Prof. Ammar Boukhmis, University of Annaba, Algeria

- **Doctorat de l'Université de Provence-France**. November 14th 2005: Ph.D Thesis in Applied Mathematics, University of Marseille, France. Thesis Advisor: Prof. T. Gallouët.
  Title of Thesis: Improved Convergence Order in Finite Volume and Finite Elements Methods.
  Referees of my Thesis[1] :
  - Prof. Yvon Maday, University of Paris 6, France
  - Prof. Mohand Moussaoui, University of Lyon, France
- **Phd studies**. Nov. 2002–Nov. 2005 : University of Marseille, France, Ph.D in Applied Mathematics
- **Magister**. July 1996 : Master (Magister) in Applied Mathematics, Annaba, Algeria
- **Magister studies**. Sep. 1994–July 1996: University of Annaba, Algeria, Master in Applied Mathematics
- **Licence**. 1988–1993 : B.A. in Mathematics, Annaba, Algeria.

3 Scientific Activities: Reviewer, Chairman in Conferences, and others

- Reviewer for some international projects, e.g. for Gulf Universities.
- Reviewer for European Series in Applied and Industrial Mathematics (ESAIM): Mathematical Modelling and Numerical Analysis (M2AN)
- Reviewer for ICIAM Congress 2023 https://iciam2023.org/
- Reviewer for LSSC https://parallel.bas.bg/Conferences/SciCom23/dates.html
- Reviewer for some international projects, e.g. for Gulf Universities.
- Associated member in I2M (Institut de Mathématiques de Marseille): https://www.i2m.univ-amu.fr/user/abdallah.bradji/.
- Reviewer for Mathematical Reviews of American Mathematical Society (AMS) since March 31, 2008
- Reviewer for Zentralblatt MATH since April 23, 2008
- Reviewer for Mathematical Methods in the Applied Sciences
- Reviewer for Numerical Algorithms
- Reviewer for Communications in Nonlinear Science and Numerical Simulation
- Reviewer for Journal of the Korean Mathematical Society
- Reviewer for Inverse Problems in Sciences and Engineering
- Reviewer for Mathematical Problems in Engineering
- Reviewer for Journal of the Franklin Institute

[1] In France, the Thesis must be refereed by two Referees

- Reviewer for Journal of Mathematical Research (JMR)
- Reviewer for Comptes Rendus Mathematiques de l'Academie de Sciences, Paris
- Invited to review for Journal AMC (Applied Mathematics and Computation)
- Honorary Peer Reviewer for Global Journal Science Frontier Research (GJSFR)
- Chairman for a session in the NAA'16: Sixth Conference on Numerical Analysis and Applications, Lozenets-Bulgaria: http://parallel.bas.bg/dpa/NAA16/
- Chairman for a session in the International Symposium on Finite Volume for Complex Applications VI, Prague: http://fvca6.fs.cvut.cz/
- Subreviewer for FVCA8's and FVCA9's Proceedings
- Reviewer for Mathematical Methods in the Applied Sciences
- Journal of Difference Equations and Applications

4 Positions

- Associated member in I2M (Institut de Mathématiques de Marseille): https://www.i2m.univ-amu.fr/user/abdallah.bradji/.
- Since January 2015: Full Professor at the University of Annaba, Algeria.
- Since February 2016: "Directeur de Recherche". This grade is given as research grade.
- Till December 2014: Associate Professor (Maître de Conference) (rank "A") at the University of Annaba, Algeria.
- Since 1999: "Enseignant Chercheur" at the University of Annaba, Algeria.
- June 1st 07–December 31 st 2007: Postdoc in Nečas Center of Mathematical Modeling, Prague, Czech Rep.
- March 1 st 06–Mai 31 st 07 : Postdoc in WIAS: Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany.
- Sept. 04–Aug. 05 : Teaching Assistant ATER with T. Gallouët, University of Marseille, France
- Sep. 99–Nov.02 : Lecturer in Mathematics, University of Annaba, Algeria
- April 99–July 99 : Lecturer in Mathematics, University of Tebessa, Algeria
- Sep. 97-March 99 : Military Service; Mars 15th 98–Mars 15th 99: Teacher of Mathematics in "Académie Militaire Interarmes" (AMIA) de Cherchell, Algérie
- Oct. 93-Jan.97 : Lecturer in Mathematics, University of Annaba, Algeria

5 Visiting Positions and Lectures

- Visiting Professor ("Professeur Invité", in French) to LAGA (Laboratoire d'Analyse, Géométrie, et Applications) and EUR (Ecole Universitaire de Recherche) of University of Paris 13-France in the period September 12th till October 11th, 2024.
  I gave two mini-courses:

  - *An overview on some numerical methods.* Given Tuesday October 1st 2024, 2 hours.
  - *Finite Volume method for Heat, Wave, and Time Fractional Heat Equations.* Given Tuesday October 8th 2024, 2 hours.

- Lecture given in LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France in November 6th-2023,
  The title of the lecture is "'Some Convergence Results in Mixed Finite Elements Methods".
- Visiting Professor ("Professeur Invité", in French) to LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France for 2023 in October/November.
- Visiting Professor ("Professeur Invité", in French) to LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France in the period September 7th–September 27th, 2022
- Online Lecture given in June 10th-2022 in LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France entitled "Some Convergence Results for Mixed Finite Element Methods in the Divergence Norm"
- Visiting Professor ("Professeur Invité", in French) to LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France in the period October 15th–November 16th, 2021.
- An accepted Application, for one month, as Professeur Invité for the year 2019/2020 in LAGA (Laboratoire d'Analyse, Géométrie, et Applications) of University of Paris 13-France. I could not joint Paris 13 because of the travel restrictions due to coronavirus.
- Invited by LAGA (Laboratoire d'Analyse, Géométrie, et Applications)-Paris 13 in the period June 2nd–June 16th, 2019.
- Invited by LAGA (Laboratoire d'Analyse, Géométrie, et Applications)-Paris 13 in the period March 23rd–April 8th, 2018.
  Title of lecture: On the convergence of a finite volume scheme for a parabolic equation.
- Invited by LAGA (Laboratoire d'Analyse, Géométrie, et Applications)-Paris 13 in the period November 12th–November 26th, 2017.
  Title of lecture: On the convergence order of gradient schemes for time dependent partial differential equations.
- Invited by WIAS (Weierstrass Institute of Applied Analysis and Stochastics) in the period June 9th–June 16, 2016.
  Title of lecture: On the convergence order of gradient schemes for time dependent partial differential equations.
- Invited by WIAS in the period August 31–September 9, 2013.
  Title of lecture: Some recent results on the convergence order of finite volume methods for evolution equations.
- March 10th 2009 at 11 AM: Invited for an interview for scientific research position in the scientific French organization CNRS. Unfortunately I could not reach "Institut Henri Poincaré" (IHP) in Paris, where my interview is scheduled, because I had no ticket flight from Algeria to Paris.
- Invited by Nečas Center of Mathematical Modeling, Prague-Czech Republic, to spend one month in the year 2007/2008. Not gone because of some personal conditions.
- Colloquium Tuesday, January 15th, 2008, in the Department of Mathematics and Statistics of Memorial University, St Johns, Newfoundland–Canada.

- Lecture in Necas Center of Mathematical Modeling, June 2007.
- Invited to do a Seminar, by Departamento de Matematica, Instituto Superior Tecnico, Lisboa, Portugal (June 2006).
- Invited by the WIAS (Weierstrass Institute for Applied Analysis and Stochastics of Berlin) , February 2006.
  Title of lecture: Finite Volume Methods for Elliptic Problems.

6 Publications

We refer to the following links for more details:

- Link in USPN (more updated): https://www.math.univ-paris13.fr/~bradji/publications.html.
- Link in AMU: https://www.i2m.univ-amu.fr/perso/abdallah.bradji/publications.html.

6.1 Articles submitted or in Progress

- Analysis of direct mixed and inverse Cauchy problems associated to a fractional-order partial differential equation.
  With D. Lesnic.
  Submitted May 2nd-2024.
- A generic scheme and a novel convergence analysis approach for time fractional diffusion equation and applications.
  With F. Benkhaldoun.

6.2 Articles in Journals

- $L^{\infty}(H_div) \times W^{1,\infty}(L^2)$-norm superconvergence of mixed finite element schemes applied to multidimensional parabolic equations.
  With F. Benkhaldoun.
  Volume 3/Issue 1, Pages 40–68. Communications on Analysis and Computation (CAC).
- A note on an iterative algorithm for solving an inverse problem for a fractional-order partial differential equation.
  With D. Lesnic.
  Volume 3/Issue 1, Pages 31–39. Communications on Analysis and Computation (CAC).
- Homogeneous incompressible Bingham viscoplastic as a limit of bi-viscosity fluids.
  With A. Aberqi, W. Aboussi, F. Benkhaldoun, and J. Bennouna.
  J. Elliptic Parabol. Equ. 9/2, 705–724 (2023).
- Novel analysis approach for the convergence of a second order time accurate mixed finite element scheme for parabolic equations.
  With F. Benkhaldoun.
  Computers and Mathematics with Applications, Volume 133, March 1, 85–103, 2023.
- Steady-state inhomogeneous diffusion with generalized oblique boundary conditions.
  With D. Lesnic.
  ESAIM Math. Model. Numer. Anal. 57 (2023), no. 5, 2701–2733.

- Two new error estimates of a fully discrete primal-dual mixed finite element scheme for parabolic equations in any space dimension.
  With F. Benkhaldoun.
  Results in Mathematics, 76/4, article number 182, 2021.
- A new analysis for the convergence of the gradient discretization method for multidimensional time fractional diffusion and diffusion-wave equations.
  Computers and Mathematics with Applications. 79/2, 500–520, 2020.
- Note on a $W^{1,\infty}(L^2)$–error estimate of a nonlinear finite volume scheme for a semi-linear heat equation.
  With A. Berkane.
  Arab Journal of Mathematical Sciences, 27/1, 104–118, 2021.
- Notes on the convergence order of gradient schemes for time fractional differential equations.
  C. R. Math. Acad. Sci. Paris 356/4, 439–448, 2018.
- On the convergence and convergence order of finite volume gradient schemes for oblique derivative boundary value problems.
  With J. Fuhrmann. J. Comp. Appl. Math. 37/3, 2533–2565, 2018.
- Convergence analysis of some first order and second order time accurate gradient schemes for semilinear second order hyperbolic equations.
  Numerical Methods for Partial Differential Equations, 33/1, 5–33, 2017
- Some new first order and second order time accurate gradient schemes for semilinear parabolic equations.
  Computers and Mathematics with Applications, 72/5, 1287–1304, 2016.
- A theoretical analysis for a new finite volume scheme for a linear Schrödinger evolution equation on general nonconforming spatial meshes.
  Numerical Functional Analysis and Optimization, 36/5, 590–623, 2015.
- A theoretical analysis of a new second order finite volume approximation based on a low–order scheme using general admissible spatial meshes for the one dimensional wave equation. JMAA (Journal in Mathematical Analysis and Applications), 422/1, 109–147, 2015..
- A full analysis of a new second order finite volume approximation on a low order scheme using general admissible spatial meshes for the unsteady one dimensional heat equation.
  JMAA (Journal in Mathematical Analysis and Applications), 416/1, 258–288, 2014.
- Some new error estimates for finite element methods for the acoustic wave equation using the Newmark method.
  With Jürgen Fuhrmann. Mathematica Bohemica, 139/2, 125–136, 2014
- A new error estimate for a Crank–Nicolson finite element scheme for parabolic equations.
  With Jürgen Fuhrmann. Mathematica Bohemica, 139/2, 113–124, 2014.
- An analysis of a second order time accurate scheme for a finite volume method for parabolic equations on general nonconforming multidimensional spatial meshes.
  Applied Mathematics and Computation, 219/11, 6354–6371, 2013.
- Convergence analysis of some high–order time accurate schemes for a finite volume method for second order hyperbolic equations on general nonconforming multidimensional spatial meshes.
  Numerical Methods for Partial Differential Equations, 29/4, 1278–1321, 2013.

- A theoretical analysis of a new finite volume scheme for second order hyperbolic equations on general nonconforming multidimensional spatial meshes.
  Numerical Methods for Partial Differential Equations, 29/1, 1–39, 2013.
- Some abstract error estimates of a finite volume scheme for a nonstationary heat equation on general nonconforming multidimensional spatial meshes, 31 pages.
  With J. Fuhrmann. "Applications of Mathematics, Praha", 58/1, 1–38, 2013.
- Error estimates of the discretization of linear parabolic equations on general nonconforming spatial grids.
  With J. Fuhrmann. Comptes rendus - Mathématique 348/19-20 , 1119–1122, 2010.
- Some simples error estimates for finite volume approximation of parabolic equations.
  Comptes Rendus de l'Académie de Sciences, Paris, 346/9-10 pp. 571-574, 2008.
- Discretization of the coupled heat and electrical diffusion problems by the finite element and the finite volume methods.
  With R. Herbin. IMA Journal of Numerical Analysis, **28** (3), 469–495, 2008.
- Optimal defect corrections on composite nonmatching finite element meshes.
  With A.-S. Chibi. IMA Journal of Numerical Analysis, **27** (4), 765– 780, 2007
- Error Estimate for Finite Volume Approximate Solutions of Some Oblique Derivative Boundary Problems.
  With T. Gallouët. International Journal on Finite Volumes. **3** (2), 35 pages (electronic), 2006
- Impropved Convergence Order for Finite Volume Solutions. Part I: 1D Problems.
  With B. Atfeh. Arab Journal of Mathematical Sciences. **11** (1), 1–30, 2005.
- Impropved Convergence Order for Finite Volume Solutions. Part II: 2D Problems.
  With B. Atfeh. Arab Journal of Mathematical Sciences. **11** (2), 1–53, 2005.

6.3 Articles in Peer Reviewed Proceedings

- An $L^\infty(H^1)$-Error Estimate for Gradient Schemes Applied to Time Fractional Diffusion Equations. In: Franck, E., Fuhrmann, J., Michel-Dansac, V., Navoret, L. (eds) Finite Volumes for Complex Applications X–Volume 1, Elliptic and Parabolic Problems. FVCA 2023. Springer Proceedings in Mathematics and Statistics, Vol 432, Pages 177–185. Springer, Cham. https://doi.org/10.1007/978-3-031-40864-9_12.
  With F. Benkhaldoun.
- A new analysis for a super-convergence result in the divergence norm for Lowest Order Raviart-Thomas Mixed Finite Elements combined with Crank-Nicolson method applied to one dimensional parabolic equations. In: Franck, E., Fuhrmann, J., Michel-Dansac, V., Navoret, L. (eds) Finite Volumes for Complex Applications X–Volume 1, Elliptic and Parabolic Problems. FVCA 2023. Springer Proceedings in Mathematics and Statistics, Vol 432, Pages 167–175. Springer, Cham. https://doi.org/10.1007/978-3-031-40864-9_11.
  With F. Benkhaldoun.
- Convergence Analysis of a Finite Volume Scheme for a Distributed Order Diffusion Equation.
  With F. Benkhaldoun.
  Lecture Notes in Computer Science, vol 13858, 59–72. Springer, Cham, 2023.

- SUSHI for a Bingham Flow Model.
  With W. Aboussi and F. Benkhaldoun.
  Lecture Notes in Computer Science, vol 13858, 1–13. Springer, Cham, 2023.
- SUSHI for a Time Fractional Diffusion Equation with Delay.
  With F. Benkhaldoun.
  Lecture Notes in Computer Science, vol 13858, 73–84. Springer, Cham, 2023.
- A finite volume scheme for a wave equation with several time independent delays.
  With F. Benkhaldoun and T. Ghoudi.
  Lecture Notes in Computer Sciences, Vol 13127, 498–506, 2022.
- A new error estimate for a primal-dual Crank Nicolson Mixed Finite Element using lowest degree Raviart Thomas spaces for parabolic equations.
  With F. Benkhaldoun.
  Lecture Notes in Computer Sciences, Vol 13127, 489–497, 2022.
- Note on the convergence of a finite volume scheme for a second order hyperbolic equation with a time delay in any space dimension.
  With F. Benkhaldoun.
  Springer Proceedings in Mathematics and Stochastics, V. 323, 2020, 315–324: FVCA IX, Methods, Theoretical Aspects, Examples
- A new optimal $L^\infty(H^1)$–error estimate of a SUSHI scheme for the time fractional diffusion equation.
  Springer Proceedings in Mathematics and Stochastics, V. 323, 2020, 305–314: FVCA IX, Methods, Theoretical Aspects, Examples .
- A new gradient scheme of a time fractional Fokker–Planck equation with time independent forcing and its convergence analysis.
  Springer Proceedings in Mathematics and Stochastics, V. 323, 2020, 285–293: FVCA IX, Methods, Theoretical Aspects, Examples
- A Convergence Result of a Linear SUSHI Scheme Using Characteristics Method for a Semi-Linear Parabolic Equation.
  With M. Ziggaf.
  In Advances in High Performance Computing, I. Dimov et al. (Eds.), 2020, V. 902, 452–462 in Studies in Computational Intelligence.
- Convergence Analysis of a Finite Volume Gradient Scheme for a Linear Parabolic Equation Using Characteristic Methods.
  With F. Benkhaldoun.
  Lecture Notes in Computer Sciences, V 11958, 566–575, 2020.
- A Second Order Time Accurate Finite Volume Scheme for the Time-Fractional Diffusion Wave Equation on General Nonconforming Meshes.
  With F. Benkhaldoun.
  Lecture Notes in Computer Sciences, V 11958, 95–104, 2020.
- Some Convergence Results of a Multidimensional Finite Volume Scheme for a Semilinear Parabolic Equation with a Time Delay.
  With Tarek Ghoudi.
  Lecture Notes in Computer Sciences, V 11189, 351–359, 2019.

- A Second Order Time Accurate SUSHI method for the Time-Fractional Diffusion Equation.
  Lecture Notes in Computer Sciences, V 11189, 197–206, 2019.
- Some convergence results of a multi-dimensional finite volume scheme for a time-fractional diffusion-wave equation.
  In: Cancès C., Omnes P. (eds) Finite Volumes for Complex Applications VIII - Methods and Theoretical Aspects. FVCA 2017. Springer Proceedings in Mathematics and Statistics, 391–399, vol 199. Springer, Cham.
- Note on a New High Order Piecewise Linear Finite Element Approximation for the Wave Equation in One Dimensional Space
  In: Dimov I. et al. (eds) Numerical Analysis and Its Applications. NAA 2016. LNCS 10187, 235–242, Springer, Cham
- Convergence Order of a Finite Volume Scheme for the Time-Fractional Diffusion Equation
  With J. Fuhrmann.
  In: Dimov I. et al. (eds) Numerical Analysis and Its Applications. NAA 2016. LNCS 10187, 33–45, Springer, Cham
- Note on a new piecewise linear finite element approximation of order four for one dimensional second order elliptic problems on general meshes.
  Proceedings of MAMERN VI 2015, 175–185 (2015), B. Amaziane et al. (Eds), ISBN 978-84-338-5783-5
- Some discrete a priori estimates for a finite volume scheme appearing in the discretization of a time dependent Joule heating system
  Proceedings of MAMERN VI 2015, 187–197 (2015), B. Amaziane et al. (Eds), ISBN 978-84-338-5783-5
- A convergence order for a finite volume scheme for a semilinear parabolic equation.
  Proceedings of MAMERN VI 2015, 199–2010 (2015), B. Amaziane et al. (Eds), ISBN 978-84-338-5783-5
- Note on the convergence of a finite volume scheme using a general nonconforming mesh for an oblique derivative boundary value problem.
  Springer Proceedings in Mathematics and Stochastics, V. 77, 2014, 149–157: Finite Volumes for Complex Applications VII, Methods and Theoretical Aspects (Fuhrmann et al. Eds.).
- A new finite volume scheme for a linear Schrödinger evolution equation.
  Springer Proceedings in Mathematics and Stochastics, V. 77, 2014, 127–135: Finite Volumes for Complex Applications VII, Methods and Theoretical Aspects (Fuhrmann et al. Eds.).
- A note on a new second order approximation based on a low-order finite volume scheme for the wave equation in one space dimension.
  Springer Proceedings in Mathematics and Stochastics, V. 77, 2014, 137–147: Finite Volumes for Complex Applications VII, Methods and Theoretical Aspects (Fuhrmann et al. Eds.).
- Some second order time accurate for a finite volume method for the wave equation using a spatial multidimensional generic mesh.
  Handlovicova et al. (ed.), Algoritmy 2012. Proceedings of contributed papers and posters. Bratislava: Slovak University of Technology, Faculty of Civil Engineering. 342–352 (2012).

- Some abstract error estimates of a finite volume scheme for the wave equation on general nonconforming multidimensional spatial meshes.
  Accepted in Finite Volumes for Complex Applications VI, Proceedings of the 6th International Symposium on Finite Volume for Complex Applications/ edited by J. Fořt, J. Fürst, J. Halama, R. Herbin, and F. Hubert, Springer, 2011.
- Some Error Estimates for the Discretization of Parabolic Equations on General Multidimensional Nonconforming Spatial Meshes.
  With J. Fuhrmann. Accepted for publication in LNCS (Lecture Notes in Computer Science) "Numerical Methods and Applications"Volume 6046, eds. I. Domov, S. Dimova, and N. Kolkovska, 2010.
- Towards an approach to improve convergence order in finite volume and finite element methods.
  Proceedings of ICNAAM "International Conference in Numerical Analysis and Applied Mathematics", Edited by T. E. Simos, G. Psihoyios, and Ch. Tsitouras, 1162–1165, 2009
- Some error estimates in finite volume methods for parabolic equations.
  With J. Fuhrmann. Finite Volumes for Complex Applications V, Proceedings of the 5th International Symposium on Finite Volume for Complex Applications/ edited by R. Eymard and J.-M. Hérard, Wiley, 233–240, 2008.
- On the discretization of Ohmic losses.
  With R. Herbin. Proceedings of Tamtam, 2007,Tipaza, Algeria, 217–222. AMNEDP-USTHB, 2007.
- On the discretization of the coupled heat and electrical diffusion problems.
  With R. Herbin. Numerical Methods and Applications. 6 th International Conference, NMA 2006, Borovets, Bulgaria, Aug. 20–24, 2006. Lecture Notes in Computer Science 4310 Springer 2007, pp. 1–15.
- Finite volume approximation for an oblique derivative boundary problem.
  with T. Gallouët. Finite Volumes for Complex Applications IV, Proceeding of the 4th International Symposium on Finite Volume for Complex Applications/edited by F. Benkhaldoun, D. Ouazar, and S. Raghay, Hermes-Penton, pp. 143–152, 2005.
- Improved convergence order of finite solutions and application in finite elements methods. Proceedings of ICNAAM: International Conference in Numerical Analysis and Applied Mathematics, Simos, G. Psihoyios and C. Tsitouras (eds), Wiley -VCH, pp. 94-98, 2005.

7 Contributions using COMSOL Multiphysics

- Convergence rates for models with coupled 1D/2D subdomains.
  With E. Holzbecher and M.-S. Litz. COMSOL Conference of Paris, 2010.
- On the convergence order of the COMSOL solutions in Sobolev norms.
  With Holzbecher. CD Proceedings of the COMSOL Conference of Budapest, November 2008.
- On the convergence order of the COMSOL solutions.
  With Holzbecher. CD Proceedings of the COMSOL Conference of Grenoble, October 2007.

8 Some selected talks and Workshops

We refer to https://www.i2m.univ-amu.fr/perso/abdallah.bradji/lectures.html for more updated information.

- A New Analysis for a Super-Convergence Result in the Divergence Norm for Lowest Order Raviart-Thomas Mixed Finite Elements Combined with the Crank–Nicolson Method Applied to One Dimensional Parabolic Equations.
  Presented in Finite Volumes for Complex Applications X (FVCA10), Strasbourg-France, October 30, 2023–November 03, 2023.
  With Benkhaldoun.
- An $L^{\infty}(H^1)$-Error Estimate for Gradient Schemes Applied to Time Fractional Diffusion Equations.
  Presented in Finite Volumes for Complex Applications X (FVCA10), Strasbourg-France, October 30, 2023–November 03, 2023.
  With Benkhaldoun.
- Scheduled talk in ICIAM Congress 2023 ((10h International Congress on Industrial and Applied Mathematics): Finite Volume Approximate Solutions of Some Oblique Derivative Boundary Value Problems and Applications. Not gone because of lack of funding.
  - Mini-Symposium of "Oblique Derivative Boundary Volume Problems: Numerical Methods and Applications" Organized by Professor Marek Macák (Slovak University of Technology in Bratislava).
  - Date-Place: August 20–25th, Tokyo-Japan.
  - Invited by Professor Karol Mikula (Slovak University of Technology in Bratislava).
- SUSHI for a Bingham Flow Model. With F. Benkhaldoun and W. Aboussi
  Presented by W. Aboussi in NMA-2022 Conference, August 22nd–26th, 2022.
  Link: http://www.math.bas.bg/~nummeth/nma22/Program_NMA22.pdf.
- Convergence Analysis of a Finite Volume Scheme for a Distributed Order Diffusion Equation.
  With F. Benkhaldoun.
  Presented by F. Benkhaldoun in NMA-2022 Conference, August 22nd–26th, 2022.
  Link: http://www.math.bas.bg/~nummeth/nma22/Program_NMA22.pdf.
- SUSHI for a Time Fractional Diffusion Equation with Delay.
  With F. Benkhaldoun.
  Presented by Bradji in NMA-2022 Conference, August 22nd–26th, 2022.
  Link: http://www.math.bas.bg/~nummeth/nma22/Program_NMA22.pdf.
- Online Lecture presented in June 10th-2022 in LAGA "Laboratoire d'Analyse, Geometrie, et Applications", Sorbonne University-Paris Nord, France.
  Title: Some Convergence Results for Mixed Finite Element Methods in the Divergence Norm.
- Non-Newtonian fluid models: some existing results and advances.
  Scheduled to presented in ICNTAM (The First International Conference on New Trends in Applied Mathematics) http://icntam.com/index.html in Béni Mellal-Morocco, May 19–21, 2022
  With F. Benkhaldoun and W. Aboussi.
- A finite volume method for a distributed order diffusion equation.
  Scheduled to presented in ICNTAM (The First International Conference on New Trends in Applied Mathematics) http://icntam.com/index.html in Béni Mellal-Morocco, May 19–21, 2022
  With F. Benkhaldoun.

- New Challenges in Fluid Flow Simulations Presented online by F. Benkhaldoun at PDEs in Fluid Mechanics (PDEFM2021), Wednesday June 16th-2021, Lebanon.
  Link: https://pdefm2021.webnode.fr/
- Le calcul scientifique et ses interactions.
  With F. Benkhaldoun et al. Presented online by F. Benkhaldoun at Les Discussions Mathématiques Franco-Marocaines, Thursday April 29th-2021. Link: https://www.math.univ-paris13.fr/laga/index.php/fr/sd/seminaires/20-seminaires/280-discussions-mathematiques-franco-marocaines
- Note on the convergence of a finite volume scheme for a second order hyperbolic equation with a time delay in any space dimension.
  With F. Benkhaldoun.
  Presented at FVCA2020 which held ONLINE in the period June 15–June 19, 2020 in Bergen-Norway.
- A new optimal $L^\infty(H^1)$–error estimate of a SUSHI scheme for the time fractional diffusion equation.
  Presented at FVCA2020 which held ONLINE in the period June 15–June 19, 2020 in Bergen-Norway.
- A new gradient scheme of a time fractional Fokker–Planck equation with time independent forcing and its convergence analysis.
  Presented at FVCA2020 which held ONLINE in the period June 15–June 19, 2020 in Bergen-Norway.
- Fluides Complexes et Etudes Numériques.
  Joint Talk presented by F. Benkhaldoun in the Seminar of the team MSC of the Laboratory LAGA "Laboratoire d'Analyse, Geometrie, et Applications"-Paris 13, May 6th, 2020.
- Convergence Analysis of a Finite Volume Gradient Scheme for a Linear Parabolic Equation Using Characteristic Methods
  With F. Benkhaldoun
  LSSC'19 (Large Scale Scientific Computations), pp 566-575, June 2019
- A Second Order Time Accurate Finite Volume Scheme for the Time-Fractional Diffusion Wave Equation on General Nonconforming Meshes
  With F. Benkhaldoun
  LSSC'19 (Large Scale Scientific Computations), pp 95-104 , June 2019
- A Second Order Time Accurate SUSHI method for the Time-Fractional Diffusion Equation.
  Presented at NMA2018, Borovets - Bulgaria, August 2018.
- Some Convergence Results of a Multidimensional Finite Volume Scheme for a Semilinear Parabolic Equation with a Time Delay.
  With Tarek Ghoudi.
  Presented at NMA2018, Borovets - Bulgaria, August 2018.
- On the convergence of a finite volume scheme for a parabolic equation.
  Presented in LAGA "Laboratoire d'Analyse, Geometrie, et Applications" in April 5th, 2018
- On the convergence order of gradient schemes for time dependent partial differential equations.
  Presented in LAGA "Laboratoire d'Analyse, Geometrie, et Applications" in November 24th, 2017.
- Some convergence results of a multi-dimensional finite volume scheme for a time-fractional diffusion-wave equation.
  Presented in FVCA8, Lille-France, June 12–16-2017.

- Convergence Order of a Finite Volume Scheme for the Time-Fractional Diffusion Equation.
  Presented in NAA16 Conference, Bulgaria, June 15–22-2016.
- Note on a new high order piecewise linear finite element approximation for the wave equation in one dimensional space.
  Presented in NAA16 Conference, Bulgaria, June 15–22-2016.
- On the convergence order of gradient schemes for time dependent partial differential equations.
  Presented in WIAS in June 14th-2016.
- Some discrete a priori estimates for a finite volume scheme appearing in the discretization of a time dependent Joule heating system.
  Presented in the Conference MAMERN VI 2015
- Note on a new piecewise linear finite element approximation of order four for one dimensional second order elliptic problems on general meshes.
  Presented in the Conference MAMERN VI 2015
- A convergence order for a finite volume scheme for a semilinear parabolic equation.
  Presented in the Conference MAMERN VI 2015
- Note on the convergence of a finite volume scheme using a non-conforming mesh for an oblique derivative boundary value problem.
  Presented in the FVCA7 Conference, June 2014, at WIAS-Berlin, Germany
- Note on a new second order approximation based on a low-order finite volume scheme for the wave equation in one space dimension.
  Presented in the FVCA7 Conference, June 2014, at WIAS-Berlin, Germany
- A new finite volume scheme for a linear Schrödinger evolution equation.
  Presented in the FVCA7 Conference, June 2014, at WIAS-Berlin, Germany
- Lecture presented in WIAS (Weierstrass Institute of Applied Analysis and Stochastics), Berlin-Germany in Thursday September 5th, 2013.
  Title of the lecture: Some recent results on the convergence order of finite volume methods for evolution equations.
- Some new error estimates for finite element methods for second order hyperbolic equations using Newmark method..
  Presented in Equadiff13, August 2013
- A new error estimate for fully finite element discretization scheme for parabolic equations using Crank-Nicolson method..
  Presented in Equadiff13, August 2013
- Some error estimates for the discretization of parabolic equations on general multidimensional non-conforming spatial meshes.
  With Fuhrmann. Presented in NMA 2010, August 2010, Bulgaria.
- Convergence rates for models with coupled 1D/2D subdomains.
  With E. Holzbecher and M.-S. Litz. COMSOL Conference, Nov. 17–19, Paris.
- Towards an approach to improve convergence order in finite volume and finite element methods. In “International Conference in Numerical Analysis and Applied Mathematics”, Greece, September, 2009.

- On the convergence order of the COMSOL solutions.
  Presented by E. Holzbecher in the COMSOL Conference of Grenoble, October 2007.
- On the discretization of ohmic losses.
  Oral Presentation by R. Herbin in " TAMTAM07, 3 éme Colloque sur les Tendances dans les Applications Mathématiques en Tunisie, Algerie, Maroc". 14–15 Avril 2007.
- Verification of thermohaline simulations, 5th Colloquium of the DFG Priority Program SPP 1135 "Dynamics of Sedimentary Systems under Varying Stress Regimes: The Example of the Central European Basin", Geseke-Eringerfeld, November 15–17, 2006.
  With Fuhrmann, j., Enchery, G., Bayer, U., and Margi, F.
- Numerical Schemes for Ohmic Losses.
  With Raphaele Herbin. Oral Presentation in the Workshop of "Modelling and Simulation of PEM Fuel Cells", September 18-20, 2006. WIAS, Berlin, Germany.
- Improved Convergence Order of Finite Solutions and Application in Finite Elements Methods.
  Oral Presentation in International Conference on Numerical Analysis and Applied Mathematics, ICNAAM , September 16-20, 2005, Rhodes, Greece.
- Finite Volume Approximation for an Oblique Derivative Boundary Probem.
  With Thierry Gallouët. Oral Presentation In the Fourth International Symposium in Finite Volumes for Complex Applications-Problems and Perspectives, July 4-8, 2005, Morocco.
- Towards highly accurate approximations through defect correction and discrete Schwarz method.
  With A.-S. Chibi. Oral Presentation by A. -S. Chibi in the Second International Conference on Mathematical Sciences ICM December 2004, United Arab Emirates University.
- Amélioration de l'Ordre de Convergence pour l'Approximation de Problèmes elliptiques.
  With Bilal Atfeh. Oral Presentation in "Congré National d'Analyse Numérique", June 2004.
- Some Improvements of Convergence Order of Finite Volume solution.
  Work-Shop of Volumes finis/Galerkin Discontinu, organized by Pr. R. Herbin in CMI, Marseille.
- Defect Correction Technique through Domain Decomposition Method.
  "Séminaire d'Analyse Appliquée e au CMI, univ. de Provence, Marseille,
  http://www.latp.univ-mrs.fr/equipes/analyse_appliquee/eqANAP-seminaire.html
- On the Dependence of the Convergence of the Corrections on Subdomains on the Degree of the Interpolation Operators.
  With Ahmed Salah Chibi. Oral Presentation in the Third Mathematical Colloque in Analysis and its Applications, 2002, Algeria.
- "Sur la Convergence de l'Alternative de Schwarz Discrete Accelerée".
  With Ahmed Salah Chibi. Oral Presentation in the Meeting of Algerian Mathematiciens RMA, 2000, Algeria.
- "Une Contribution à l'Amélioration de Convergence de la Méthode des Eléments Finis sur une Région Circulaire".
  With Ahmed Salah Chibi. Oral Presentation in the "Congré National de Mathématiques", Annaba, Algeria, 1999.

9 Funded projects

- Chef of the CNEPRU project "Les Méthodes de Volumes et Eléments Finis pour Quelques Modèles en Dynamique de Fluide". Agreed for 4 (four years) starting from January 2015.
- Chef of PNR project "Etude Mathématique et numériques de quelques modeles de dynamique de Gaz, exemple systeme des equation d'Euler de la dynamique de Gaz".
- Chef of the CNEPRU project "L' Analyse mathématique et numérique de la récupération assistée des hydrocarbures" (Mathematical and numerical analysis of enhanced oil recovery).

10 Supervision

- Co-Supervisor with F. Benkhaldoun of the Phd thesis of Wassim Aboussi in the University of Paris 13-France.
- Supervisor of Ms. "Hamdane Rahima" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Résolution Mathématique et Numérique des Equations Differentielles d'Ordre Fractionnaire". "Memoire" defended in September, 2020.
- Supervisor of Ms. "Hazem, Hana" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Sur Deux Systèmes Simples des Equations d'Ordre Fractionnaire". "Memoire" defended in June, 2022.
- Supervisor of Ms. "Hattab, Marwa" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Initiation a la Résolution des Equations Differentielles d'Ordre Fractionnaire". "Memoire" defended in June, 2018.
- Supervisor of Ms. "Laamraoui, Meriem" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Finite Element Method for the Wave Equation in One Space Dimension". "Memoire" defended in June, 2015.
- Supervisor of Ms. "Chaib, Ibtissam" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "A Finite Volume Scheme for a Semilinear Elliptic Equation in One Space Dimension". "Memoire" defended in June, 2015.
- Supervisor of Ms. "Loujani, Nour El-Houda" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Error Estimates for the Finite Volume Approximation for the Heat Equation". "Memoire" defended in June, 2014.
- Supervisor of Ms. "Guenadil, Assia" and Mr. "Bouabda, Achour" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Numerical Methods for Schrödinger equation ". "Memoire" defended in June 19th 2013.
- Supervisor of Ms. "Sebti, Habiba" in Master 2, Department of Mathematics–University of Annaba in Algeria, in a subject on "Numerical Methods for Fractional derivative Equations". "Memoire" defended in June 19th 2011.
- Supervisor with R. Herbin of two students of Master 2, University of Marseille I–France, in a project entitled: Coupled System with Irregular Data.

11 Expert and Examiner for theses

11.1 Habilitation

- Nabil Beroual–Setif University, October 2020.

11.2 Expert for Ph.d theses

- Expert for the Ph.d thesis of Mr. "Tarek Ghoudi". Thesis entitled "Analyse a posteriori et adaptation de maillage pour des problèmes d'écoulements souterrains et à surface libre ". Thesis will be defended in LAGA (Laboratoire d'Analyse, Géométrie, et Applications)-Paris 13.
- Expert for the Ph.d thesis of Mrs. "Aicha Assala". Thesis entitled "Etude Mathématique et Numérique de certains Problèmes des Milieux Poreux". Thesis defended September, 2014 in the University of Annaba-Algeria.
- Expert for the Ph.d thesis of Mrs. "Nowel Ouanes". Thesis entitled "Cycles Limites des Systèmes Différentiels de Liénard perturbés". Thesis defended Wednesday June 26, 2014 in the University of Annaba-Algeria.
- Expert for the Ph.d thesis of Mr. "Kara, Mohamed". Thesis entitled "Calcul des Modes de Torsion et la Méthode de Domaines Fictifs pour les Problèmes d'Elasticité Plane avec des Conditions aux Limites Générales". Thesis defended September 28th 2013 in the University of Setif-Algeria.

11.3 Expert for Magister

- Expert for the Magister thesis of Mr. "Boulares Salah". Thesis entitled "Discrétisation et Résolution Numérique de quelques Problèmes aux Limites". Thesis defended Thursday June 25, 2014 in the University of Annaba-Algeria.

12 Teaching and some Pedagogic Activities

This item is more updated in the link https://www.i2m.univ-amu.fr/perso/abdallah.bradji/plan.html.

12.1 Participation in Pedagogic Committees

- Participation in the East Regional Committee (In French "CRU Est.") to prepare National Exams "Concours National d'Accès au Second Cycle des Ecoles Supérieures" in September 2021 and June 2022.
- Participation to prepare exams for "Concours de Formations Doctorales " in October 2019, March 2021, March 2022, and February 2023.

12.2 Some Selected courses in Post Graduation

- 2021/2022: Course in Applied Mathematics. Level Master 1-University of Annaba-Algeria.
- 2021/2022: Course in Numerical Methods (Finite Differences and Finite Volumes Methods). Level Master 1-University of Annaba-Algeria.

- 2013/2014: Course in "Finite Volume Methods". Master 2 in the Department of Mathematics (Master of Special Functions), University of Annaba-Algeria.
- 2011/2012 and 2012/2013: Course in "Numerical Methods for some Known Models in Physics". Master 2 in the Department of Physics (Master of Theoretical Physics), University of Annaba-Algeria.
- 2013/2014 (First Semester): Course in "Numerical Methods". Master 1 in the Department of Metallurgy and Materials Engineering (Master of Mise en Forme), University of Annaba-Algeria.
- 2013/2014 (Second Semester): Course in "Numerical Methods". Master 1 in the Department of Metallurgy and Materials Engineering (Master of Traitement de Surface), University of Annaba-Algeria.
- 2009/2010 (Second Semester): Course in "Numerical Methods". Master 1 in the Department of Metallurgy and Materials Engineering, University of Annaba-Algeria.

12.3 Some Selected courses in Graduation and Under Graduation

- 2021/2022 and 2nd Semester of 2020/2021: Course of Numerical Analysis which covers almost the basic tools of Numerical Analysis: Resolution of nonlinear Equations, Resolution of Linear Systems, Iterative Methods for Linear Systems, Polynomial Approximation and Polynomial Interpolation, Numerical Integration, Numerical Resolution of First Order Non-Linear Differential Equation. Level: 2nd year Graduation in "ENSMM (Ecole Nationale Supérieure des Mines et Métallurgie d'Annaba-Algeria)".
- 2021/2022 and 2020/2021: TDs "Travaux dirigés" of the the course described in the previous item.
- 2011/2012, 2012/2013, and 2013/2014: Course in "Application of Mathematics". Second year under graduation in the Department of Mathematics, University of Annaba–Algeria.
- 2004/2005: Analysis, Undergraduate
- 1999/2000: Analysis, Statistics, Numerical Analysis, Algebra, Undergraduate.
- April 99–July 99 : Finite Difference methods for Partial Differential Equations, Graduate.
- Oct. 93–Junuary 97 : Analysis and Algebra, Undergraduate.
- 2009 till now: Finite Difference methods and Finite Volume methods, Post Graduate.
- Supervision with R. Herbin of two students of Master 2, University of Marseille I–France, in a project entitled: Coupled System with Irregular Data.