

Personal Information

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Education Information

Doctorate, Université Paris VI, Laboratoire Jacques-Louis Lions, Matematik, France 2006 - 2010

Postgraduate, Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, Matematik (YI) (Tezli), Turkey 2003 - 2005

Undergraduate, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics, Turkey 1998 - 2003

Dissertations

Doctorate, Finite volume methods for non-linear hyperbolic conservation laws on manifolds, Université Paris VI, Laboratoire Jacques-Louis Lions – UMR 7598, 2010

Research Areas

Mathematics, Partial Differential Equations, Numerical Analysis, Physics, General Physics, Relativity and Gravitation, Natural Sciences

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics, 2018 - Continues

Assistant Professor, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics, 2011 - 2018

Courses

NUMERICAL METHODS IN PDEs, Doctorate, 2018 - 2019

NUMERICAL METH. IN ORDINARY DIFF. EQU., Doctorate, 2018 - 2019

Advising Theses

Okutmuőtur B., The Compressible Euler System and Its Numerical Analysis, Postgraduate, E.Yilmaz(Student), 2019

OKUTMUŐTUR B., Inviscid burgers equations and its numerical solutions, Postgraduate, N.Oyar(Student), 2017

OKUTMUŐTUR B., The relativistic Burgers equation on a Friedmann–Lemaître–Robertson–Walker (FLRW) background

and its finite volume approximation, Doctorate, T.Ceylan(Student), 2015

Jury Memberships

Doctoral Examination, Doctoral Examination, İstanbul Teknik Üniversitesi, May, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, December, 2019

Post Graduate, Tez Savunma Jurisi, Hacettepe Üniversitesi, February, 2018

Post Graduate, Tez Savunma Jurisi, Dicle Üniversitesi, July, 2016

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **A Finite Volume Method for the Relativistic Burgers Equation on a FLRW Background Spacetime**
Ceylan T., Lefloch P. G. , Okutmuştur B.
COMMUNICATIONS IN COMPUTATIONAL PHYSICS, vol.23, pp.500-519, 2018 (Journal Indexed in SCI)
- II. **Finite volume approximation of the relativistic Burgers equation on a Schwarzschild-(anti-)de Sitter spacetime**
Ceylan T., Okutmuştur B.
TURKISH JOURNAL OF MATHEMATICS, vol.41, pp.1027-1041, 2017 (Journal Indexed in SCI)
- III. **Finite volume method for the relativistic burgers model on a (1+1)-Dimensional de sitter spacetime**
Ceylan T., Okutmuştur B.
Mathematical and Computational Applications, vol.21, 2016 (Journal Indexed in SCI Expanded)
- IV. **RELATIVISTIC BURGERS EQUATIONS ON CURVED SPACETIMES. DERIVATION AND FINITE VOLUME APPROXIMATION**
Lefloch P. G. , Makhlof H., Okutmuştur B.
SIAM JOURNAL ON NUMERICAL ANALYSIS, vol.50, pp.2136-2158, 2012 (Journal Indexed in SCI)
- V. **Hyperbolic conservation laws on manifolds. An error estimate for finite volume schemes**
Lefloch P. G. , Okutmustur B., Neves W.
ACTA MATHEMATICA SINICA-ENGLISH SERIES, vol.25, pp.1041-1066, 2009 (Journal Indexed in SCI)
- VI. **FINITE VOLUME SCHEMES ON LORENTZIAN MANIFOLDS**
Amorim P., Lefloch P. E. , Okutmustur B.
COMMUNICATIONS IN MATHEMATICAL SCIENCES, vol.6, pp.1059-1086, 2008 (Journal Indexed in SCI)
- VII. **Hyperbolic conservation laws on manifolds with limited regularity**
Lefloch P. G. , Okutmustur B.
COMPTES RENDUS MATHEMATIQUE, vol.346, pp.539-543, 2008 (Journal Indexed in SCI)

Articles Published in Other Journals

- I. **Propagations of Shock and Rarefaction Waves on the Reissner-Nordström Spacetimes for Burgers Models**
Okutmuştur B.
Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.22, pp.448-459, 2018 (National Refreed University Journal)
- II. **Hyperbolic conservation laws on spacetimes. A finite volume scheme based on differential forms**
Lefloch P. G. , Okutmustur B.
Far East Journal of Mathematical Sciences, vol.31, pp.49-83, 2008 (Refereed Journals of Other Institutions)

Books & Book Chapters

- I. **An Introduction to Sobolev Spaces**
Pişkin E., Okutmuştur B.
Bentham Science Publishers, Sharjah, 2021
- II. **A Survey on Hilbert Spaces and Reproducing Kernels**
Okutmuştur B.
in: Functional Calculus, Kamal Shah, Bayer Okutmuştur, Editor, IntechOpen, London, pp.61-77, 2020
- III. **A FIRST COURSE IN ANALYSIS - Introductory Calculus**
Okutmuştur B.
Nobel Yayın Dağıtım, Ankara, 2019
- IV. **Scalar Conservation Laws**
Okutmuştur B.
in: Advanced Computational Fluid Dynamics for Emerging Engineering Processes - Eulerian vs. Lagrangian, Albert S. Kim, Editor, IntechOpen, London, pp.69-92, 2019
- V. **Relativistic Burgers Models on Curved Background Geometries**
Okutmuştur B.
in: Finite Difference Methods. Theory and Applications, Ivan Dimov, Istvan Farago, Lubin Vulkov, Editor, Springer-Verlag, Zug, pp.370-377, 2019
- VI. **Finite Volume Method For Hyperbolic Conservation Laws On Manifolds**
Okutmuştur B.
LAP LAMBERT Academic Publishing, Saarbrücken, 2017
- VII. **Reproducing Kernel Hilbert Spaces The Basics Bergman Spaces and Interpolation Problems**
Okutmuştur B., Aurelian G.
LAP Lambert Academic Publishing, Saarbrücken, 2010

Refereed Congress / Symposium Publications in Proceedings

- I. **A Survey on Spacetime Geometries and Relativistic Models**
Okutmuştur B.
4th International Engineering, Science and Education Conferences (INESEC), Diyarbakır, Turkey, 6 - 09 November 2019, pp.41
- II. **Reisnerr-Nordstrom Spacetime Geometry: Derivation of the Euler and Burgers Models**
Okutmuştur B.
16th International Geometry Symposium, Manisa, Turkey, 4 - 07 July 2018, pp.149
- III. **Relativistic Burgers Models on Curved Background Geometries**
Okutmuştur B.
International Conference on Finite Difference Methods, Bulgaria, 11 - 16 June 2018, vol.11386, pp.370-377
- IV. **Analysis of Burgers Model on Reisnerr-Nordstrom Spacetime by Finite Volume Approximations**
Okutmuştur B.
Seventh Conference on Finite Difference Methods: Theory and Applications, Burgas, Bulgaria, 11 - 16 June 2018, pp.36
- V. **Propagation of shock and rarefaction waves for the relativistic Burgers models on Reisnerr-Nordstrom spacetime.**
Okutmuştur B.
III. International Conference on Symmetries, Differential Equations and Applications (SDEA-III), İstanbul, Turkey, 14 - 17 August 2017, pp.38
- VI. **Numerical Analysis of Relativistic Burgers Model on FLRW Spacetime.**
Okutmuştur B.
III. International Conference on Symmetries, Differential Equations and Applications (SDEA-III), İstanbul, Turkey, 14 - 17 July 2017, pp.32

- VII. **Analysis of the Relativistic Burgers models on spacetime geometries**
Okutmuştur B.
International Conference on Hyperbolic Problems Theory, Numerics, Applications, Aachen, Germany, 1 - 05 August 2016, pp.88-89
- VIII. **Shock and Rarefaction Waves for Burgers Models on Spacetime Geometries Comparison and Analysis**
Okutmuştur B.
2nd International Conference on Analysis and Its Application, Kırşehir, Turkey, 12 - 15 July 2016, pp.73
- IX. **1 1 Boyutlu De Sitter ve Anti De Sitter Uzay Zamanlarında Burgers Modellerinin Teorik ve Numerik incelenmesi**
Okutmuştur B.
11. Ankara Matematik Günleri Sempozyumu, Ankara, Turkey, 26 - 27 May 2016, pp.38
- X. **Derivation and Finite Volume Approximation of the Relativistic Burgers Equation on a De Sitter Background**
Okutmuştur B., Ceylan T.
ENUMATH 2015, Ankara, Turkey, 14 - 18 September 2015, pp.156
- XI. **Kivrimli Uzay zamanlarda Rölativistik Burgers Denklemleri**
Okutmuştur B.
10. Ankara Matematik Günleri, ODTU, Ankara., Ankara, Turkey, 11 - 12 June 2015, pp.10
- XII. **Derivation of the relativistic Burgers equation on a de Sitter background**
Okutmuştur B., Ceylan T.
Proceedings of 19th International Conference on Applied Mathematics, Mathematics and Computers in Science and Engineering Series, İstanbul, Turkey, 15 - 17 December 2014, vol.38, pp.41-47
- XIII. **Derivation and numerical study of relativistic Burgers equations on a curved spacetime**
Lefloch P., Hasan M., Okutmuştur B.
WONAPDE 2013 - Fourth Chilean Workshop on Numerical Analysis of Partial Differential Equations, Concepcion, Chile, 14 - 18 September 2013, pp.180
- XIV. **Burgers equations depending on the background geometry**
Okutmuştur B.
UMS2013 - 26. Ulusal Matematik Sempozyumu. Dicle Üniversitesi, Diyarbakır., Diyarbakır, Turkey, 4 - 07 September 2013
- XV. **Derivation and numerical study of relativistic Burgers equations posed on Schwarzschild spacetime**
Okutmuştur B.
ICAAM 2012, First International Conference on Analysis and Applied Mathematics, Gümüşhane, Turkey, 18 - 21 October 2012, pp.45
- XVI. **Relativistic Burgers equations on a curved spacetime**
Okutmuştur B.
14th International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Padua, Italy, 25 - 29 June 2012, pp.92
- XVII. **The relativistic version of Burgers equation**
OKUTMUŞTUR B.
Congress of CANUM, 40e Congress of Numerical Analysis, (CANUM 2010), Carcans-Maubuisson, Gironde, France, 31 May - 04 June 2010
- XVIII. **Convergence of finite volume schemes for hyperbolic conservation laws on spacetimes**
Okutmuştur B.
Computational Methods and Function Theory (CMFT), Ankara, Turkey, 8 - 12 June 2009, pp.46
- XIX. **Convergence de schémas volumes finis pour les lois de conservation hyperboliques posées sur un espace temps**
OKUTMUŞTUR B., Philippe L.
Congress of SMAI, 4th Biennial French Applied and Industrial Mathematics,, Alpes-Maritimes, France, 25 - 29 May 2009

XX. Lois de conservation hyperboliques sur les variétés une estimation d error pour le schema de volume fini

OKUTMUŞTUR B., LeFloch P., Neves W.

Congress of CANUM, 39th Congress of Numerical Analysis (CANUM 2008), Vendée, France, 26 - 30 May 2008

XXI. Convergence de la méthode des volumes finis pour les lois de conservation hyperboliques sur des variétés Lorentziennes

Paulo A., Philippe L., OKUTMUŞTUR B.

Congress of SMAI, 3rd Congress of Applied and Industrial Mathematics, Praz sur Arly, France, 4 - 08 June 2007

Supported Projects

OKUTMUŞTUR B., Project Supported by Higher Education Institutions, Reissner-Nordström Uzay-zaman Geometrisinde Burgers Modellerinin Analizi, 2018 - 2020

OKUTMUŞTUR B., Project Supported by Higher Education Institutions, "Schwarzschild-de Sitter" uzay-zamanında Rölativistik Burgers denklem modelinin sonlu hacim yo"ntemleriyle teorik ve nu"merik olarak incelenmesi, 2016 - 2016

OKUTMUŞTUR B., Project Supported by Higher Education Institutions, Yapay sinir ağlarının karmaşık dinamik davranışları, 2015 - 2016

OKUTMUŞTUR B., Ceylan T., Uzunca M., Project Supported by Higher Education Institutions, FLRW uzay zamanında Rölativist Burgers denklemleri, 2013 - 2014

Activities in Scientific Journals

Turkish Journal of Mathematics, Special Issue Editor, 2016 - 2016

Scientific Refereeing

The Aligarh Bulletin of Mathematics, Other Indexed Journal, September 2020

HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, Journal Indexed in SCI-E, June 2020

HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, Journal Indexed in SCI-E, May 2020

Konuralp Journal of Mathematics, Other Indexed Journal, February 2020

BOLETIM SOCIEDADE PARANAENSE DE MATEMATICA, Journal Indexed in SCI-E, February 2020

Journal of New Results in Science, Other Indexed Journal, December 2019

Middle East Journal of Science, Other Indexed Journal, September 2019

SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI,

Journal Indexed in ESCI, September 2019

HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, Journal Indexed in SCI-E, July 2019

Project Supported by Higher Education Institutions, BAP Research Project, Middle East Technical University, Turkey, June 2019

Project Supported by Higher Education Institutions, BAP Research Project, Middle East Technical University, Turkey, May 2019

Project Supported by Higher Education Institutions, BAP Research Project, Middle East Technical University, Turkey, May 2019

Middle East Journal of Science, Other Indexed Journal, April 2019

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, April 2019

Punjab University Journal of Mathematics, Journal Indexed in ESCI, January 2019

MATHEMATICAL METHODS IN THE APPLIED SCIENCES, Journal Indexed in SCI-E, November 2018

Journal Of Mathematical Physics, SCI Journal, November 2018

Fundamental Journal of Mathematics and Applications, Other Indexed Journal, November 2018

MATHEMATICAL METHODS IN THE APPLIED SCIENCES, Journal Indexed in SCI-E, October 2018
Computer Methods in Applied Mechanics and Engineering, SCI Journal, May 2018
Journal of Physics Communications, Journal Indexed in ESCI, May 2018
Journal of Physics Communications, Other Indexed Journal, December 2017
SIAM Journal on Numerical Analysis, SCI Journal, May 2017
Numerische Mathematik, SCI Journal, April 2017
Communications Faculty of Sciences University of Ankara Series A1 Mathematics and Statistics, National Scientific
Refreed Journal, August 2016
Turkish Journal of Mathematics, SCI Journal, November 2013
Abstract and Applied Analysis, SCI Journal, July 2013

Edit Congress and Symposium Activities

16th International Geometry Symposium, Manisa Celal Bayar University,, Attendee, Manisa, Turkey, 2018
Seventh Conference on Finite Difference Methods: Theory and Applications (FDM: T&A'2018), Working Group, Burgas,
Bulgaria, 2018
III. International Conference on Symmetries, Differential Equations and Applications (SDEA-III),, Attendee, --Seçiniz--,
Turkey, 2017
XVI International Conference on Hyperbolic Problems Theory, Numerics, Applications,, Attendee, Aachen, Germany,
2016
2nd International Conference on Analysis and Its Application, Attendee, --Seçiniz--, Turkey, 2016
11. Ankara Matematik Günleri, Attendee, Ankara, Turkey, 2016
10. Ankara Matematik Günler, Attendee, Turkey, 2015
19th International Conference on APPLIED MATHEMATICS, Attendee, İstanbul, Turkey, 2014
26. Ulusal Matematik Sempozyumu., Attendee, Diyarbakır, Turkey, 2013
Fourth Chilean Workshop on Numerical Analysis of Partial Differential Equations,, Attendee, Concepcion, Chile, 2013
First International Conference on Analysis and Applied Mathematics, Attendee, --Seçiniz--, Turkey, 2012
14th International Conference on Hyperbolic Problems: Theory, Numerics, Applications., Attendee, Padua, Italy, 2012
Congress of CANUM, Congress of numerical analysis,, Attendee, Bordeaux, France, 2010
Computational Methods and Function Theory (CMFT), Attendee, --Seçiniz--, Turkey, 2009
Congress of SMAI, 4th Biennial French Applied and Industrial Mathematics,, Attendee, Alpes-Maritimes, France, 2009
Congress of SMAI, Congress of Applied and Industrial Mathematics, Attendee, --Seçiniz--, France, 2007

Citations

Total Citations (WOS):75

h-index (WOS):5