

## CURRICULUM VITAE

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**Date:** Fall 2022

### Teaching

<u>Date</u>	<u>Title</u>	<u>Institution and Department</u>
1999-Present	Professor	University of West Georgia, Physics
1994-1998	Associate Professor	University of West Georgia, Physics
1990-1994	Assistant Professor	University of West Georgia, Physics
1988-1989	Assistant Professor	University of West Georgia, Physics
1987-1988	Vis. Asst. Professor	Massachusetts College of Liberal Arts, Mathematics
1982-1987	Teaching Assistant	State University of New York at Albany, Physics

### Service To Institution

#### Committee Membership

2021-present	- UWG Health and Wellness committee member
2021-2022	- CACSI advisory Committee member
2021-present	- Georgia Academy of Science Historian
2018-present	- Georgia Academy of Science Councilor at large
2019-2021	- Intercollegiate Athletics and University Advancement Committee
2018-2019	- College of Science and Mathematics Executive committee member
2013, 2020	- Technology Fees Committee member
2015-2018	- UWG "A Day" fund raising volunteer staff
2018	- Georgia Academy of Science annual meeting at UWG co-chair, and Technical program chair
2016	- Department of physics third year review committee member
2016-2018	- College of Science and Mathematics curriculum committee member
2016-2017	- Electronic dossier development for promotion and tenure committee member
2014-2016	- Technology Fees Committee chair
2015-2016	- Post-Tenure Review Appeals Committee member
2014-2017	- College of Science and Mathematics Advisory Committee member
2013	- Office of Research and Sponsored Projects faculty advisory board member
2008-2013	- Faculty Senate member, Honors committee chair (2012-2013)
2010-2011	- College of Science and Mathematics Policies and Procedures Committee member
2012	- Honors Programs Committee Chair
2011	- Honors Programs Committee member
2011	- Institutional Review Board Member
2005-2007, 2010-2011	- University Matters Committee Member
2007-2009	- Planning Committee member – Multicultural Ball
2008-2010	- Member of the Intercollegiate Athletics senate committee (chair: 2008-2009)
2005-2007	- Tenure and Promotion committee member (Arts and Sciences)
2002-2004	- Program Review Advisory committee under the VPAA
1999-2004	- Writing Across the Curriculum (WAC) committee member

- 2002-2003 - Disciplinary Appeals Review committee – advising the UWG president
- 2002-2003, 2005 - Tenure and Promotion committee member (Arts and Sciences)
- 2002 - Five year capital plan committee member
- 2002 - President’s Disciplinary appeals review committee member
- 2001-2002, 2005 - Post-Tenure review committee member
- 2001-2002 - Graduate school Hirsh Scholarship Committee member
- 2001-2003 - University Matters Committee Member
- 1997-Present - Celebration of Scholarship Committee Member
- 1995-Present - UWG representative to the Regent's Academic Advisory Committee on Physics
- 1997 - Rensselaer Polytechnic Studio Classroom visit committee member
- 1995-1997 - Member of the task force for Semester Implementation Committee
- 1995-1996 - Interdisciplinary Science Committee Member
- 1994-1996 - Member of the Academic Policies and Procedures Committee
- 1994-1995 - Member of Intellectual Property Committee and subcommittee chair
- 1993-1994 - Member of the UWG Presidential Screen and Search Committee
- 1991-1993 - Arts and Sciences Executive Committee
- 1992-1994 - Learning Resources Committee
- 1993 - Appointed Liaison Member between the Learning Resources and the Electronics Communication advisory Committee
- 1994 - Delegate of the University of West Georgia Sigma Xi Chapter annual national meeting of the Sigma Xi Scientific Research Society
- 1991-1993 - President of the University of West Georgia Sigma Xi Chapter
- 1991-1992 - Institutional Planning Committee for the University of West Georgia accreditation self study
- Other - Substituted on occasions for colleagues in various committees

- General - Attend commencement ceremonies, arena registration, visitation day, Honors convocations, and College colloquiums
- Built a Physics and mathematics faculty and staff photographic bulletin board located in the main entrance of the math-physics building in 1993 and updated it yearly until the year 2000.
- Built physics department’s original home page in 1995 and updated it yearly until 2005.

Counseling Experience

- 2015-2017 - Student Children Card Games Club adviser
- 2014-2017 - Student Poker Club adviser
- 2013- 2016 - UWG Wellness committee member
- 2012 - 2015 - Chess coach – Oak Grove Montessori school
- 2012 - 2013 - Advisor to the "United Leadership Council" UWG student club
- 2011-2012 - Advisor to Chess and Pool (billiards) UWG student clubs
- 1991-Present - Physics majors advisor. Help in the advising of Dual Degree Physics/Engineering majors
- 1991-Present - Have been advisor to several students who have taken advanced physics projects (theoretical and experimental).
- 1990-Present - Have Assisted and been involved with physics/engineering student club activities
- 1999 - Ph. D. Thesis referee for former visiting scholar of physics, Shiliang Ban
- 1997-1998 - Ph. D. Thesis advisor to invited Chinese scholar of physics, Shiliang Ban from Inner Mongolia University, Hohhot Inner Mongolia, China
- 1991 - Served as a co-advisor to a master thesis psychology student (Charles Winstead). His project involved physics aspects in his subject

Participation In Educational Activities

- 2021-2022 - Attended Innovations in Pedagogy conference
- 2016-2019 - Committee member of the UWG Stem Education Enhancement Plan (SEEP)
- 2014-2016 - Involved in the STEM week physics demonstrations at UWG, and Bremen high school.
- 2012 – 2015 - Involved with the University of West Georgia Institutional STEM excellence (UWISE)
- 2011 - Involved with activities associated with the University’s UTEACH center for STEM disciplines

- 2011 - Involved in activities associated with the STEM disciplines Summer Bridge program
- 2009 - Participated as instructor in the IMPACT (Improving Motivation, Performance, and Attitudes of Children and Teachers) and performed physics demonstrations.
- 2008 - Science Fair Demonstrations in General Physics to high school students.
- 2001-2005 - Carrollton High School Physics Demonstrations
- 2003 - Participated in physics demos during the "Carrollton teaches Carrollton" day at the local High School
- 2003, 2005 - Presented physics demonstrations for Science Fair
- 1999 - Appointed UWG Georgia Science Olympiad director by A&S dean
- 1999 - Proposed new physics major with Business, Education Concentrations, and Physics Emphases in Computational Physics, Electro-Optics, and Solid State
- 1997, 1998 - Participated in the design and implementation of the physics laboratories section of science bowls hosted by the chemistry department at UWG
- 1997 -2002 - Promoted presentations from the sciences' students research as part of UWG's celebration of scholarship
- 1997 - Attended a writing across the curriculum (WAC) Arts and Sciences retreat
- 1993 - Introduced Computational Physics into the physics curriculum at UWG
- 1991, 1993 - Promoted educational activities as president of the University of West Georgia Sigma Xi Chapter
- 1988-Present - Have assisted on various occasions with the physics demonstration night for the public
- 1989, 1991, 1992 - Participated as reader and judge in the regional science bowl competitions held in chemistry at UWG
- General - Held and assisted with various observation sessions for students and the public at the University of West Georgia physics observatory
- Assist the teaching of classes during faculty sick leave
- Develop demonstration programs to be used as computer educational aids in several courses taught (Basic, Pascal, Fortran, C, UNIX, Maple, Matlab, Mathematica, and more recently web based Java, and Physlets)
- Build physics demonstrations for in/out classroom purposes
- Given MCAT reviews to chemistry students on many occasions
- Voluntarily participate in maintenance of physics equipment
- Develop physics simulations in Java (<http://www.westga.edu/~jhasbun/osp/osp.htm>) using the Open Source Physics Library.

## Academic Achievement

<u>Degree</u>	<u>Place</u>	<u>Years</u>
Post-Doc.	Naval Weapons Center, China Lake, CA	1989-1990
Ph. D.	State University of New York at Albany	1984-1987
M. Sc.	State University of New York at Albany	1982-1984
B. Sc.	Massachusetts College of Liberal Arts	1976-1982

## Honors, Awards

- 2017 - Invited talk AAPT Winter meeting, Atlanta, GA 2/18-21.
- 2008 - Carl Storm fellowship recipient for Physics Research and Education (Gordon Research Conference).
- 1996 - Listed in who is who in Science and Engineering
- 1995 - University of West Georgia Outstanding Educator Award
- 1993 - Listed in Who is Who in American Education
- 1992-1993 - Nominated for the National Science Foundation Presidential Faculty Fellows Awards programs by former University of West Georgia president, Dr. Maurice Townsend
- 1992-1993 - Nominated for the National Science Foundation Young Investigator Awards program by former physics chairman Dr. Richard Prior
- 1990 - National Research Council-Naval Research Laboratory associateship award
- 1989-1990 - Awarded an American Society of Engineering Education post-doctoral fellowship at the Naval Weapons Center; Sponsor: Tsu W. Nee

## Grants

- 2021 -UWG Faculty Research Grant, \$3,308

- 2018-2019 - SEEP program (\$3220) for “Numerical Calculation Enhancement in Physics 3113 to enhance student success” for the mechanics physics course offered in the Fall 2018
- 2017-2018 - SEEP program (\$3940) for “Supplementing instruction-II in physics 3113 to enhance student success” for the mechanics physics course offered in the Fall 2017
- 2016-2017 - SEEP program (\$4480) for “Supplementing instruction in physics 3113 to enhance student success” for the mechanics physics course offered in the Fall 2016
- 2017 - \$1600 LSAMP award for research with minority student - Kelly Ford.
- 2016 - UWG Stem Education Enhancement Plan (SEEP), Co-Pi, (\$130,000)
- 2015 - UWISE minigrant: “Improving instruction in nuclear physics to enhance student success (\$3500)
- 2015 - UWISE minigrant: “Improving instruction in solid state physics to enhance student success (\$5000)
- 2014 - UWISE minigrant: “Energy Flux Study” (\$5300)
- 2013 - UWISE minigrant: “Improving instruction in nuclear physics to enhance student success (\$7000)
- 2012 - UWISE minigrant: “Millikan oil Drop Simulation” (upper level student supervises 2 lower level \$7600)
- 2011 - University of West Georgia Student Research Assistant Program (SRAP) grant: \$2000 (w/DeSilva)
- 2010 - University of West Georgia Student Research Assistant Program (SRAP) grant: \$2000 (w/DeSilva)
- 2009 - University of West Georgia Faculty Research grant: \$ 750
- 2003-2008 - Group member in the NSF funded Science, Technology, Engineering, and Mathematics \$ 877,093 activities
- 2007 - Laptop Proposal for online course development, award by UWG VP’s office.
- 2006-2007 - GEMS (Generating Enthusiasm in Math and Science ) grant : \$900.
- 2004 - Techfees grant for \$2818 for software graphics in physics
- 2003 - UWG Technology Fee software grant (Matlab, IDL, Mathematica, Latex), \$ 11,655
- 2002 - Compaq Visual Fortran from Compaq Computer Corporation software grant, \$ 9,995
- 1999-2000 - Student Research Assistant Program (SRAP) grant, \$ 1712
- 1999 - Sun Microsystems Academic Equipment grant, \$ 57,730
- 1999 - Technology to Enhance Teaching and Learning at UWG, Mathematica for Unix (\$ 900)
- 1998 - University of West Georgia Faculty Research, \$ 625
- 1998 -National Center for Supercomputing Allocations: 100 hrs., Power Challenge Array machine
- 1998 - National Partnership for Advanced Computational Infrastructure: 120 hrs – CRAY J-90 (U. of Texas), and NOW machine (U. C. Berkeley)
- 1997-1998 - NSF-Pittsburgh Supercomputing center: 25 hrs on C90 CRAY, 45 hrs on Supercluster
- 1996-1997 - NSF-Pittsburgh Supercomputing Center: 60 hours on J90 CRAY, 250 hours on Supercluster; University of West Georgia Faculty Research: No.113, \$650
- 1995-1996 - NSF-Pittsburgh Supercomputing Center: 550 hours of CPU on Supercluster and 50 hours on CRAY J90
- 1994-1996 - Research Corporation Grant Renewal: No. CC3196, \$ 20,240
- 1995 - University of West Georgia Faculty Research: No. 111, \$ 1270
- 1995 - University of West Georgia Faculty Enhancement Grant \$ 700
- 1995 - Arts and Sciences Computer Award: \$ 3461.50
- 1994 - University of West Georgia Faculty Research: No. 116, \$ 1272
- 1994 - NSF-Pittsburgh Supercomputing Center: Supercluster the equivalent of 4-C90 hrs.
- 1993 - University of West Georgia Faculty Research: No. 9416, \$ 1471
- 1993 - NSF-Pittsburgh Supercomputing Center: five hours on CRAY-C90
- 1992 - University of West Georgia Faculty research: No. 9312, \$ 2474
- 1992 - NSF-Pittsburgh Supercomputing Center: fifteen hours on CRAY-YMP
- 1992-1993 - Research Corporation: No C-3196, \$ 18,200
- 1991 - Faculty Student Work Study: \$ 1350
- 1991 - University of West Georgia Faculty Research: No. 9213, \$ 2100

### **Administrative**

- 2003-2005 - Department of Physics acting chair: among various achievements are hiring a new faculty, a laboratory coordinator, a secretary, and developing a wireless network.
- 1995-2000 - Appointed Department of Physics Coordinator Responsibilities: preside physics meetings; yearly course offerings; semester faculty course assignments; coordinating departmental purchases, travel, and general activities; administered departmental assessment questionnaires; short and long range departmental goals; chairing of physics faculty searches; make recommendations to and work closely with the chair of the mathematics and physics departments and the dean of Arts and Sciences. This Assignment culminated with the successful re-establishment of the physics department on September 2000.

## Professional Growth

### Membership and Offices in Professional Societies

2021-present	- Georgia Academy of Science Historian
2014-present	- Georgia Academy of Science Physics, Math, Comp., Sci. & Eng. Tech Councilor
2016	- Georgia Academy nominations, as well as endowment fund committee member.
2009-Present	- American Association of Physics Teachers & lifetime member
1999-present	- American Physical Society & lifetime member
1992-Present	- Georgia Academy of Science & lifetime member
1985-Present	- Sigma Xi Scientific Research Society & lifetime Member
2003-2011	- Elected Physics, Math, and CS Councilor of the Georgia Academy of Science
2000-2005	- AAPT (American Association of Physics Teachers) Liaison for West Georgia
2000-2005	- APS (American Physical Society) CPDL (Careers and Professional Development Liason for physics at UWG
1996-2005	- Member of the Regents Academic Advisory Committee on Physics
2002-2003	- Elected Chair elect of the Georgia Board of Regents Academic Advisory Committee on Physics
2003	- Georgia Academy of Science Improvements Committee
2000	- Delegate to the National Sigma Xi Research Society annual meeting
1999-2001	- UWG Sigma Xi Chapter Student Research Paper Competition Chair
1998-1999	- UWG Sigma Xi Chapter Prog. Chair, Student Research Paper Competition Co-Chair
1994	- Delegate to the National Sigma Xi Research Society annual meeting
1991-1993	- UWG Sigma Xi Scientific Research Society Chapter President
1987-1999	- American Physical Society (regular member)
1992	- Sigma Xi Scientific Research Society - promoted to full member
1995-1997	- Elected Chair for the Physics, Mathematics and Computer Science section of the Georgia Academy of Science
1993-1995	- Elected secretary for the physics, Mathematics and Computer Science section of the Georgia Academy of Science

### Other

2001-2005, 2015-2021	- UWG "A Day" fund raising volunteer staff
1992-2005	- Created and administered the physics department web site
1999	- American Physical Society centennial year activities volunteer, Atlanta, GA, and UWG physics department representative to Nobel Laureate Luncheon
1995-2000	- Mathematics and Physics Departments' meetings secretary
1983-1984	- President of the Graduate Physics Student Society in the State University of New York at Albany
1984-1985	- Physics department Graduate Studies Committee member in the State University of New York at Albany

### Publications

#### Books

2008	“Classical Mechanics with MATLAB Applications,” Javier E. Hasbun (Jones & Bartlett Learning, 2008, ISBN: 10:0-7637-4636-3; 13:978-0-7637-4636-0) ( <a href="https://www.amazon.com/Classical-Mechanics-MATLAB-Applications-Javier/dp/0763746363/ref=sr_1_1?dchild=1&amp;keywords=hasbun&amp;qid=1596476156&amp;sr=8-1">https://www.amazon.com/Classical-Mechanics-MATLAB-Applications-Javier/dp/0763746363/ref=sr_1_1?dchild=1&amp;keywords=hasbun&amp;qid=1596476156&amp;sr=8-1</a> )
2010	“A First Course in Computational Physics,” Second Edition, Paul L. DeVries and Javier E. Hasbun (Jones & Bartlett Learning, 2010) ( <a href="https://www.amazon.com/First-Course-Computational-Physics/dp/076377314X/ref=sr_1_19?dchild=1&amp;keywords=hasbun&amp;qid=1596476156&amp;sr=8-19">https://www.amazon.com/First-Course-Computational-Physics/dp/076377314X/ref=sr_1_19?dchild=1&amp;keywords=hasbun&amp;qid=1596476156&amp;sr=8-19</a> )
2018	“Classical Mechanics with MATLAB Applications,” 2nd Edition, Javier E. Hasbun ( <a href="https://www.amazon.com/Classical-Mechanics-Applications-Javier-Hasbun/dp/1722299282/ref=tmm_pap_swatch_0?encoding=UTF8&amp;qid=1533306499&amp;sr=8-3">https://www.amazon.com/Classical-Mechanics-Applications-Javier-Hasbun/dp/1722299282/ref=tmm_pap_swatch_0?encoding=UTF8&amp;qid=1533306499&amp;sr=8-3</a> ), (2018, ISBN: 1722299282, 13: 978-1722299286).

2020 "Introductory Solid State Physics with MATLAB Applications," Javier E. Hasbun and Trinanjan Datta, CRC Press, Taylor Francis Group, NY (2020) (<https://www.routledge.com/Introductory-Solid-State-Physics-with-MATLAB-Applications/Hasbun-Datta/p/book/9781466512306>) and (<https://www.mathworks.com/academia/books/introductory-solid-state-physics-with-matlab-applications-hasbun.html>)

### Journal Articles

- 1) "Tight Binding Studies of  $\text{Ga}_x\text{Al}_{1-x}\text{As}$ " J. Hasbun, V. Singh, and L. Roth Phys. Rev. B 35, 2988 (1987).
- 2) "Local Environment Effects on the Density of States and Substitutional Impurities in Random Alloys" J. Hasbun and L. Roth, Phys. Rev. B 37, 2829 (1988).
- 3) "Perturbational Method for Impurity Level Splitting in the Random  $\text{GaAs}_{1-c}\text{P}_c$  Alloy System" J. Hasbun and L. Roth, J. Appl. Phys. 65, 4801 (1989).
- 4) "One-dimensional Model of a Liquid Metal in the Effective-Medium Approximation in the random Limit" J. Hasbun, Phys. Rev. B 40, 4164 (1989).
- 5) "Variational Method in a Heterojunction" J. Hasbun, Phys. Rev. B 43, 5147 (1991).
- 6) "Application of a Transient Transport Hot Electron Green's Function Approach to a Two Dimensional Model of a GaAs/AlGaAs Heterojunction" J. Hasbun and T. Nee, Phys. Rev. B 44, 3125 (1991).
- 7) "On a Transient Transport Theory Applied to a AlGaAs/GaAs Heterostructure" J. Hasbun, J. Phys. Chem Solids 53, 459 (1992).
- 8) "A Model for Transient Velocity with Overshoot", J. Hasbun, J. Phys. Chem. Solids, 53, 1305 (1992).
- 9) "Resonant Structure in the Conductivity of Two Dimensional Heterojunction Systems using a Memory Function", J. Hasbun, J. Appl. 75, 270 (1994).
- 10) "Electric Field Transport In A Two-Dimensional AlGaAs/GaAs Heterostructure", J. Hasbun, J. Phys. Chem. Solids 56, 791 (1995).
- 11) "Classical Mechanical Model for the Electron-Impurity Interaction in a Semiconductor", M. Boleman (student), and J. Hasbun, Georgia Academy of Science, Georgia J. Sci 52, No.2 (1994).
- 12) "Electron Mobility in two-dimensional modulation-doped  $\text{In}_{1-x}\text{Al}_x\text{As}/\text{In}_{1-y}\text{Ga}_y\text{As}$  alloy systems", J. Hasbun, Phys. Rev. B, 52, 11989 (1995).
- 13) "Damped Motion of a Charged Particle in the presence of Electric and Magnetic Fields", J. E. Hasbun, Eur. J. Phys. 17, 290 (1996)
- 14) "A Simple Scheme for the Numerical Evaluation of Nearly Singular Integrals", George C. John, J. E. Hasbun, and Vijay A. Singh, J. Comp. Phys. 11, pp (1997)
- 15) "Simple Illustrations of the Coherent Potential Approximation". Bulletin of the Indian Association of Physics Teachers, 15, 39 (1998)
- 16) "Magnetotransport Study In Semiconductor Quantum Well Systems", J. E. Hasbun, J. Phys. Chem. Sol. 59, 1597 (1998).
- 17) "Optical-phonon scattering in quasi-two-dimensional heterojunction systems, J. Hasbun, S. Ban, Phys. Rev. B 58, 2102 (1998).
- 18) "The Ground State of a Simple Harmonic Oscillator using a Variational Monte Carlo Method", S. Pottorf, A. Puzder, M. Chou, and J. Hasbun, Proceedings of the University of West Georgia Celebration of Scholarship Undergraduate Research Fora 1, 7 (1998).
- 19) "Understanding the Size of the Earth", Jason Hay, B. Powell, and J. Hasbun, Proceedings of the University of West Georgia Celebration of Scholarship Undergraduate Research Fora 1, 12 (1998).
- 20) "A Thermal Analog of a Classical Center of Mass System Problem: An Undergraduate Experiment", J. Hasbun and G. Keller, Engineering Educator - Hewlett Packard, [http://www.home.agilent.com/upload/cmc\\_upload/All/exp75.pdf](http://www.home.agilent.com/upload/cmc_upload/All/exp75.pdf)
- 21) "Interface Polarons in a Realistic Heterojunction Potential", S. L. Ban and J. Hasbun, Eur. Phys. J. B 8, 453 (1999).
- 22) "Donor level in a Quasi-Two Dimensional Heterojunction System", S. L. Ban and J. Hasbun, Solid State Commun, 109, 93 (1999).
- 23) "Bound Polaron in a Polar Semiconductor Heterojunction", S. L. Ban and J. Hasbun, Phys. Rev. B. 59, 2276 (1999).
- 24) "The Simple Harmonic Oscillator Ground State Using a Variational Monte Carlo Method", S. Pottorf, A. Puzder, M. Chou, and J. Hasbun, Eur. J. Phys. 20, 205 (1999).
- 25) "A numerical method for quantum tunneling", S. L. Ban, J. Hasbun, and S. X. Liang, Journal of Acta Scientiarum Universitatis NeiMongol", 31, 25 (2000).
- 26) "A novel method for quantum transmission across arbitrary potential barriers", S. L. Ban, J. Hasbun, X. X. Liang, J. Lumin. 87-89, 369 (2000).
- 27) "Investigation of Laser Fundamentals Using a Helium-Neon Laser", M. Jackson, D. Bauen (student), and J. Hasbun, Eur. J. Phys., 22, 211 (2001).
- 28) "Method for investigating tunneling in arbitrary potentials", J. Hasbun and S. L. Ban, Recent Devel. In Physics 3, 31 (2002).
- 29) "A model for the motion of a kinetic mobile" Brian Bockelman (Advisor: J. Hasbun), accepted, J. Undergraduate Res. Phys. (2002)

- 30) "Conductance in double quantum well systems" J. Hasbun, J. Phys.: Cond. Matt. 15, R143 (2003).
- 31) "Demonstrating the Central Limit Theorem Using Matlab," Kemo Dassau and J. E. Hasbun, GJS 63, No.3, 133 (2004).
- 32) "On double barrier quantum well conductance effects due to exchange and correlation," J. Hasbun, Phys. Stat. Sol. (b) 242, 1453 (2005).
- 33) "Computation in classical mechanics," T. Timberlake and J. E. Hasbun, Am. J. Phys. 76, (4&5) , 334 (2008).
- 34) "Striated Muscle Regulation of Isometric Tension by Multiple Equilibria," Henry G. Zot, Javier E. Hasbun, and Nguyen Van Minh, PlosOne Journal, p1-10, V4, No. 12, e8052 (2009):  
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008052>
- 35) "Second-Chance Signal Transduction Explains Cooperative Flagellar Switching," Henry G. Zot, Javier E. Hasbun, and Nguyen Van Minh, PlosOne Journal, p1-8, V7, No. 7, e41098 (2012).  
<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0041098>
- 36) "Dynamical analysis of calcium model of muscle at rest," J. E. Hasbun, N. V. Nguyen, and H. G. Zot, J. Nonlin. Evol. Equations and Applications, v2013 (2), p11-22 (2013). <http://www.jneea.com/?2013-2>
- 37) "The Nucleon-Core Interaction: A Nuclear Physics Simulation Suitable for Classroom Use," Benjamin Hogan and Javier Hasbun, Georgia Journal of Science, Vo. 71, No. 3, p144-157 (2013).
- 38) "Simple Experiments and Modeling of Incandescent Lamp Spectra," Austin B. Kerlin, Javier E. Hasbun, and Ajith L. DeSilva, Georgia J. Sci. V73, No2-4, pp 160 (2015).
- 39) "The Millikan Oil Drop Experiment: A simulation suitable for classroom use," Ben E. Hogan and Javier E. Hasbun, Georgia J. Sci. V.74, No.2, Article 7, pp 1-12 (2016). (<http://digitalcommons.gaacademy.org/gjs/vol74/iss2/7/>)
- 40) "Model for the electrolysis of water and its use for optimization," Roger Laszorz and Javier E. Hasbun, Georgia J. Sci., V 74, No.2, Article 11, pp 1-12 (2016). (<http://digitalcommons.gaacademy.org/gjs/vol74/iss2/11>)
- 41) "Calculating the Sun's Photospheric Temperature, an Undergraduate Physics Laboratory," Austin B. Kerlin, L. Ajith DeSilva, Shea Rose, and Javier E. Hasbun, V. 74, No.2, Article 13, pp 1-11 (2016). (<http://digitalcommons.gaacademy.org/gjs/vol74/iss2/13>)
- 42) "Enhanced troponin I binding explains the functional changes produced by the hypertrophic cardiomyopathy mutation A8V of cardiac troponin C.," H. G. Zot, Javier E. Hasbun, C. A. Michell, M. Landim-Vieira, and J. R. Pinto, Arch. Biochem. Biophys., V601, pp97-104 (2016).
- 43) "X-ray spectroscopy study of local microstructures in CdSe quantum dots prepared by UV photolithography," Ajith DeSilva, Sunil Dehipawala, Raghuvver Gadipali, and Javier E. Hasbun, AIP conference Proceedings, 1764, 030006 (2016).
- 44) "Modeling Ca<sup>2+</sup>-Bound Troponin in Excitation Contraction Coupling," Henry G. Zot and Javier E. Hasbun, Frontiers in Physiology, V7, Art. 406, pp 1-10 (2016).
- 45) "Broad absorption natural dye (Mondo-Grass berry) for dye sensitized solar cell," L. de Silva, P. K. D. D. P. Pitigala, A. G. Parker, R. Landry, J. E. Hasbun, V. Martin, T. M. W. J. Bandara, and A. G. U. Perera, J. Mater Sci.: Matter Electron, Vol. 28, No. 11, pp 7724-7729 (2017).
- 46) "Enhancing student performance in introductory physics in topics related to electricity and magnetism through the use of voluntary workshops," L. A. DeSilva, Adam Pullen, and J. E. Hasbun, Eur. J. Phys., V39, 035702 (10pp) (2018).
- 47) "On the optical path length in refracting media," J. E. Hasbun, Am. J. Phys V86, No. 4, pp 268-274 (2018).
- 48) "A Nonlinear Approximate Solution to the Damped Pendulum Derived Using the Method of Successive Approximations", GJS, V.76, No.2, Art.9 (2018). (<https://digitalcommons.gaacademy.org/gjs/vol76/iss2/9/>)
- 49) "Modeling Temperature Change Of A Computer Component Using An Rlc Circuit," Kelly S. Ford and J. E. Hasbun, GJS, Vol. 77, No. 2, Article 13 (2019). (<https://digitalcommons.gaacademy.org/gjs/vol77/iss2/13>)
- 50) "Demonstration of a Distributed Bragg Reflector for Polyvinylcarbazole and Cadmium Sulfide Layers: Modeling and Comparison to Experimental Results," Javier E. Hasbun and L. Ajith DeSilva, GJS, Vol. 78, No. 2, Article 10. (2020).  
<https://digitalcommons.gaacademy.org/gjs/vol78/iss2/10>
- 51) "Mechanical contribution to muscle thin filament activation," Henry G Zot, P Bryant Chase, Javier E Hasbun , Jose R Pinto, J Biol Chem 2020 Nov 20; 295(47):15913-15922. doi: 10.1074/jbc.RA120.014438 (<https://pubmed.ncbi.nlm.nih.gov/32900850/>)
- 52) "Generalized Weisskopf-Wigner model of triboelectroluminescence", Lok C. Lew Yan Voon, Javier E. Hasbun, Morten Willatzen, Zhong L. Wang, Eco-materials journal V3, Issue 2, e12086 (2021) <https://doi.org/10.1002/eom2.12086>  
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- 53) "Erratum: A Non-Linear Approximate Solution To The Damped Pendulum Derived Using The Method Of Successive Approximations", Georgia Journal of Science, Vol. 76, No. 2, Article 9], " J. E. Hasbun, Georgia Journal of Science, Vol. 79, No. 3, Article 1. (2021) Available at: <https://digitalcommons.gaacademy.org/gjs/vol79/iss3/1>
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### Work in Progress

- 1) Performing research in collaboration with my colleague Lok C. Lew Yan Voon on a projects related to triboelectricity. This is the effect of producing electricity through friction. It is a theoretical work that involves computational physics as well as solid state physics.
- 2) Collaborate with Dr. Henry Zot on biological research that involves muscle activation models.

### Other Works Reviewed

- 1) "Defect Energetics in Alloy Semiconductors", Amita Das, Thesis, Indian Institute of Technology, Kanpur, India, 1990.
- 2) "Eddington's Statistical Theory", R. A. Simon, Physics Essays Journal, 1993.
- 3) "Physical Science" by Renton, Rotter and Nakon (West EP, 1995).
- 4) "The Equation of State of an Einstein Universe", R. A. Simon, Physics Essays Journal, 1995.
- 5) "Equations of a Static Particle Universe", R. A. Simon, Physics Essays Journal, 1996.
- 6) "Theoretical Studies On Porous Silicon", George C. John, thesis, Indian Institute of Technology, Kanpur, India, 1997.
- 7) "Polarons and Impurity States in Semiconductor Heterojunctions", Shiliang Ban, Thesis, University of Hohhot, Hohhot China, 1999.
- 8) "Effect of two body and three body correlations on the diffusion constant of two dimensional coulomb systems in a uniform Magnetic field" by C.-Y. Shew, G. Gumbs and G. Dubey, 2001 (Solid State Comm.).
- 9) "21<sup>st</sup> Astronomy" by J. Hester, D. Burstein, G. Blumenthal, R. Greeley, B. Smith, H. Voss, and G. Wegner (Norton NY, 2002).
- 10) City University of New York proposal: "Plasmon Coupling in Nanowires" by Godfrey Gumbs, 2003
- 11) Petroleum Research Fund proposal: "Quantum phase slips in disordered superconducting wires" by Alexander Abanos, 2003
- 12) Two chapters of the calculus based physics book "Learning Physics" by Birkett (John Wiley), 2004.
- 13) Three chapters of the "An Illustrated Journey Across Space, time, and eternity" by Ray Villard (John Wiley), Spring 2006.
- 14) A scientific paper "Transmission Coefficient, Resonant Tunneling Lifetime and Transversal Time in a Multibarrier Semiconductor Heterostructure", by J. Nanda, P. K. Mahapatra, and C. L. Roy for the Journal Physica B, Spring 2006.
- 15) Textbook chapters on "The essential Cosmic Perspective" 4<sup>th</sup> ed. By Bennet, Donahue, Schneider & Voit – Addison Wesley.
- 16) John Wiley's series of textbooks – Visualizing/National Geographic series – a focus group review, 2006.
- 17) Re-reviewed a scientific paper "Transmission Coefficient, Resonant Tunneling Lifetime and Transversal Time in a Multibarrier Semiconductor Heterostructure", by J. Nanda, P. K. Mahapatra, and C. L. Roy for the Journal Physica B, 2006.
- 18) "Finite size effects of electron wavepackets in the tunneling time" by del Barco, Oscar, Physica Status Solidi and re-reviewed the resubmission, 2006.
- 19) "Areas and Volumes in Pre-Calculus" by J. A. Jarret for GJS (2007).
- 20) Four chapters of "Classical mechanics" by Hamil for Jones and Bartlett (2007).
- 21) Two chapters of "Cosmic Perspective Fundamentals" By Bennet, Donahue, Schneider & Voit – Pearson Publishing (2009).
- 22) Two chapters of "Electronic Principles," 7<sup>th</sup> ed. By Malvino and Bates – McGraw-Hill (2009).
- 23) Refereed "Electrostatics and Dimensions of Space" by Tan and Edwards for GJS (2010).
- 24) Five chapters of Norton Astronomy for Norton publishers (2011).
- 25) "Modeling Heterostructures with Schrodinger-Poisson-Navier Iterative Schemes and Influence on Electrochemical Coupling" for the Nano journal ([http://www.worldscinet.com/nano/mkt/aims\\_scope.shtml](http://www.worldscinet.com/nano/mkt/aims_scope.shtml)).
- 26) Refereed MS 24846, "General introduction to low-dimensional quantum movements in many-body systems," for the American Journal of Physics (2012).
- 27) "Calculation of 2D electronic band structure using matrix mechanics," for the American Journal of Physics (2016).

- 28) GAS paper "Arbitrary Rotated Coordinate Systems for the Inclined Plane as an Introduction to Group Theory in an Introductory Physics Classroom."
- 29) "Stark Resonances induced by the exchange-correlation potential in piezoelectric nanowires" for Phys. Stat. Solidi journal (2017).
- 30) "On the Optimization of Dissipative Chain Events," for the AJP (2019).
- 31) "Ray tracing simulation of gravitational lensing using a gradient - index model" for the American Journal of Physics.
- 32) "Hidden variables: predicting student performance in introductory physics" for the PLOS ONE journal.
- 33) "Disordered Kronig-Penney model revisited" Coherent Potential Approximation for the American Journal of Physics
- 34) "Newton's 3rd Law pair - are they collinear?" for the Physics Teacher journal

### Other Talks Presented

- 1) "High Temperature Superconductors", given at University of West Georgia in 1989, and Massachusetts College of Liberal Arts in 1988.
- 2) "Study of Transient Transport in an AlGaAs/GaAs Heterojunction", given at Naval Weapons Center in 1990.
- 3) "Variational Energy Levels for a Heterojunction Potential" given at the University of West Georgia department of physics in 1991.
- 4) "Short Time Behavior of Electrons in Semiconductor Devices" given at the University of West Georgia department of physics in 1992.
- 5) "Plasmon Dispersion for a Two Subband Model of a GaAs/AlGaAs Heterojunction Potential" given at the University of West Georgia department of physics in 1992.
- 6) "Instructive Application of Lagrangian Mechanics to the Damped Motion of a Charged Particle in Electric and Magnetic Fields" given at the University of West Georgia department of Physics, 1994.
- 7) "Electronic Motion in Two Dimensions" given at the University of Colorado at Denver physics department, 1997.
- 8) "Motions of Particles in Wells and Fields" given at the University of West Georgia as part of the Sigma Xi Scientific Research Society UWG Chapter colloquium series, 1998.
- 9) "On Electronic Mobility" and "On Charging and Discharging Capacitors and Energy Conservation" given at the University of Northern Iowa (Cedar Falls) and at Bradley University (Peoria, IL).
- 10) "Density functional theory and an application," given to the physics club and the department of physics at UWG, 2003.
- 11) The talk "On a numerical solution of the Boltzmann transport equation", J. Hasbun, GJS 61, 63 (2003) was also presented at the Wolfgang Christian's Summer 2003 Open Source Physics workshop at Davidson College in order to produce a Java based visualized simulation of the original MATLAB code.
- 12) A follow up "A Boltzmann Transport Simulation Using Open Source Physics Education" talk was given at the Summer 2004 Open Source Physics Workshop at Eckerd College.
- 13) "The 2010 Nobel Prize in Physics: Graphene," given to a general STEM audience, UWG (2010).
- 14) Science/Religion panelist on Faith and Science University of West Georgia, 2010.

### Other

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|--------------|---|
| 2009 – 2022  | - Involved in interdisciplinary research (in Biophysics): <a href="https://www.westga.edu/~jhasbun/stem/index.htm">https://www.westga.edu/~jhasbun/stem/index.htm</a> |
| 2011         | - Attended UTEACH conference – Austin, TX   |
| 2010         | - Science & Religion panelist on Faith and Science , UWG  |
| 2008         | - Attended an Astronomy workshop hosted by Pearson Education, San Francisco, CA.  |
| 2004         | - Attended a workshop on LabView (software to enable computerized experimental techniques) hosted by National Instruments, Norcross, GA                               |
| 2004         | - Attended W. Christian's Open Source Physics workshop at Eckerd College, St. Petersburg Florida  |
| 2003         | - Attended W. Christian's Open Source Physics workshop at Davidson College, Davidson, North Carolina  |
| 2001         | - Attended D. M. Cook's Computational Physics Workshop at Lawrence University, Appleton, Wisconsin  |
| 1990-2010    | - Attend colloquiums at Emory, Georgia State, and Georgia Tech Universities   |
| 1990-Present | - Attend presentations made at the physics department by colleagues, students, and invited speakers   |
| 1993         | - Attended a supercomputing workshop at the National Science Foundation Pittsburgh Supercomputing Center  |