RICHARD VASQUES

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Department of Mechanical & Aerospace Engineering ◇ The Ohio State University

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EDUCATION

Ph.D.	University of Michigan (Ann Arbor, MI) Applied & Interdisciplinary Mathematics	2009
M.S.	Federal University of Rio Grande do Sul (Porto Alegre, Brazil) Applied Mathematics	2005
B.S.	Federal University of Rio Grande do Sul (Porto Alegre, Brazil) Applied & Computational Mathematics	2002

EMPLOYMENT

09/2017 - present	Assistant Professor, Department of Mechanical & Aerospace Engineering, The Ohio State University, Columbus, OH
06/2015 - 08/2017	Assistant Project Scientist, Department of Nuclear Engineering, University of California, Berkeley, CA
07/2014 - 05/2015	Research Fellow, Department of Mechanical Engineering, Federal University of Rio Grande do Sul, Porto Alegre, Brazil
08/2012 - 07/2014	Wissenschaftlicher Mitarbeiter, Center for Computational Engineering Science, RWTH Aachen University, Aachen, Germany
03/2011 - 07/2012	Assistant Professor, Fundação Getulio Vargas, Escola de Administração de Empresas de São Paulo, São Paulo, Brazil
10/2009 - 02/2011	Associate Consultant, McKinsey & Company, São Paulo, Brazil

PEER-REVIEWED PUBLICATIONS (TOTAL: 43)

(⋆ Indicates advisee)

Journal Publications

14. R.K. Palmer⋆, R. Vasques. "Asymptotic derivation of the simplified P_N equations for non-classical transport with anisotropic scattering." *Journal of Computational and Theoretical Transport* **49:** 331–348 (2020).

13. R. Vasques, L.R.C. Moraes, R.C. Barros, R.N. Slaybaugh. "A spectral approach for solving the nonclassical transport equation." *Journal of Computational Physics* **402:** 109078 (2020).

12. I. Makine⋆, R. Vasques, R.N. Slaybaugh. "Exact transport representations of the classical and nonclassical simplified P_N equations." *Journal of Computational and Theoretical Transport* **47:** 326–349 (2018).

11. R. Vasques, K. Krycki, R.N. Slaybaugh. "Nonclassical particle transport in one-dimensional random periodic media." *Nuclear Science and Engineering* **185:** 78–106 (2017).

10. M. Wollmann da Silva, R. Vasques, B.E.J. Bodmann, M.T. Vilhena. "A nonstiff solution for the stochastic neutron point kinetics equations." *Annals of Nuclear Energy* **97:** 47–52 (2016).

9. R. Vasques. "The nonclassical diffusion approximation to the nonclassical linear Boltzmann equation." *Applied Mathematics Letters* **53:** 63–68 (2016).

8. M. Frank, K. Krycki, E.W. Larsen, R. Vasques. "The nonclassical Boltzmann equation, and diffusion-based approximations to the Boltzmann equation." *SIAM Journal on Applied Mathematics* **75:** 1329–1345 (2015).

7. R. Vasques, N.K. Yadav*. "Adjusted Levermore-Pomraning equations for diffusive random systems in slab geometry." *Journal of Quantitative Spectroscopy & Radiative Transfer* **154:** 98–112 (2015).

6. R. Vasques, E.W. Larsen. "Non-classical particle transport with angular-dependent path-length distributions. I: Theory." *Annals of Nuclear Energy* **70:** 292–300 (2014).

5. R. Vasques, E.W. Larsen. "Non-classical particle transport with angular-dependent path-length distributions. II: Application to pebble bed reactor cores." *Annals of Nuclear Energy* **70:** 301–311 (2014).

4. R. Vasques. "Nuclear energy is renewable energy." *Energy Research Journal* **5:** 33–34 (2014).

3. E.W. Larsen, R. Vasques. "A generalized linear Boltzmann equation for non-classical particle transport." *Journal of Quantitative Spectroscopy & Radiative Transfer* **112:** 619–631 (2011).

2. A.V. Cardona, R. Vasques, M.T. Vilhena. "Uma nova versão do método LTA$_n$." *TEMA: Trends in Applied and Computational Mathematics* **5:** 49–54 (2004).

1. J.R. Zabadal, R. Vasques, A. Haag, C.F. Segatto. "Simulação da dispersão de poluentes em meio aquático usando álgebra de Lie." *Ciência & Natura* **Ep:** 145–156 (2002).

Refereed Conference Proceedings and Transactions

(Presenter underlined)

28. J.K. Patel*, J.J. Kuczek*, R. Vasques. "One-way coupled tumor response model for combined-hyperthermia-radiotherapy treatment with anisotropic scattering." *Transactions of the American Nuclear Society* **121:** 65–68 (2019).

27. J.K. Patel*, J.J. Kuczek*, R. Vasques. "Nonlinear Fokker-Planck acceleration for forward-peaked transport problems in slab geometry." *Proceedings of 26th ICTT: International Conference on Transport Theory*, Paris, France, September 2019.

26. J.K. Patel*, L.R.C. Moraes, R. Vasques, R.C. Barros. "P$_1$ synthetic acceleration for non-classical spectral S$_N$ equations in slab geometry." *Proceedings of 26th ICTT: International Conference on Transport Theory*, Paris, France, September 2019.

25. R.K. Palmer*, R. Vasques. "Asymptotic derivation of the simplified P$_N$ equations for non-classical transport with anisotropic scattering." *Proceedings of 26th ICTT: International Conference on Transport Theory*, Paris, France, September 2019.

24. R. Vasques, P.S. Brantley, R.K. Palmer*. "A nonclassical Monte Carlo algorithm for transport problems in diffusive binary stochastic media." *Proceedings of 26th ICTT: International Conference on Transport Theory*, Paris, France, September 2019.

23. B.D. Ganapol, J.K. Patel*, R. Vasques. "One-way coupled benchmark for combined-hyperthermia-radiotherapy treatment in slab geometry." *Proceedings of 26th ICTT: International Conference on Transport Theory*, Paris, France, September 2019.

22. J. Chen*, J.K. Patel*, R. Vasques. "Solver recommendation for transport problems in slabs using machine learning." *Proceedings of International Conference on Mathematics & Computational Methods Applied to Nuclear Science & Engineering*, Portland, OR, August 2019.

21. J.K. Patel*, R. Vasques, B.D. Ganapol. "Towards a multiphysics model for tumor response to combined-hyperthermia-radiotherapy treatment." *Proceedings of International Conference on Mathematics & Computational Methods Applied to Nuclear Science & Engineering*, Portland, OR, August 2019.

20. M. Wrenninge, R. Vasques, R.N. Slaybaugh. "A generalized volume rendering approach for computer graphics." *Proceedings of 25th ICTT: International Conference on Transport Theory*, Monterey, CA, October 2017.

19. I. Makine*, R. Vasques, R.N. Slaybaugh. "Exact transport representations of the classical and nonclassical simplified P_N equations." *Proceedings of 25th ICTT: International Conference on Transport Theory*, Monterey, CA, October 2017.

18. R. Vasques, R.N. Slaybaugh. "Simplified P_N equations for nonclassical transport with isotropic scattering." *Proceedings of International Conference on Mathematics & Computational Methods Applied to Nuclear Science & Engineering*, Jeju, South Korea, April 2017.

17. R. Vasques, R.N. Slaybaugh, K. Krycki. "Nonclassical particle transport in the 1-D diffusive limit." *Transactions of the American Nuclear Society* **114:** 361–364 (2016).

16. M. Wollmann da Silva, B.E.J. Bodmann, M.T. Vilhena, R. Vasques. "The solution of the neutron point kinetics equation with stochastic extension: an analysis of two moments." *Proceedings of 7th International Nuclear Atlantic Conference*, São Paulo, Brazil, October 2015.

15. R. Vasques, K. Krycki. "Boundary conditions for the 1-D non-classical transport equation." *Proceedings of 24th ICTT: International Conference on Transport Theory*, Taormina, Sicily, Italy, September 2015.

14. R. Vasques, K. Krycki. "On the accuracy of the non-classical transport equation in 1-D random periodic media." *Proceedings of Joint International Conference on Mathematics and Computation, Supercomputing in Nuclear Applications and the Monte Carlo Method*, Nashville, TN, April 2015.

13. R. Engels, M. Frank, J. Furletova, A. Havenith, G. Kemmerling, J. Kettler, E. Mauerhofer, O. Schitthelm, M. Schumann, R. Vasques, D. Voß. "Compact neutron imaging system for radioactive-waste analysis (NISRA)." *Proceedings of 10th World Conference on Neutron Radiography*, Grindelwald, Switzerland, October 2014.

12. M. Schumann R. Engels, M. Frank, S. Furletov, J. Furletova, C. Genreith, A. Havenith, G. Kemmerling, J. Kettler, T. Krings, E. Mauerhofer, D. Neike, M. Rossbach, O. Schitthelm, R. Vasques, C. Carasco, E. Payan, B. Perot, J.-L. Ma. "Monte-Carlo application for nondestructive nuclear waste analysis." *Proceedings of Joint International Conference on Supercomputing in Nuclear Applications + Monte Carlo*, Paris, France, October 2013.

11. K. Krycki, R. Vasques. "Numerical schemes for a non-classical linear Boltzmann equation for transport through spatially correlated media." *Proceedings of NumHyp: Numerical approximations of hyperbolic systems with source terms and applications*, Aachen, Germany, September 2013.

10. M. Schumann, R. Engels, M. Frank, S. Furletov, J. Furletova, C. Genreith, A. Havenith, G. Kemmerling, J. Kettler, T. Krings, E. Mauerhofer, D. Neike, M. Rossbach, O. Schitthelm, R. Vasques, C. Carasco, E. Payan, B. Perot, J.-L. Ma. "Zerstörungsfreie Charakterisierung Radioaktiver Abfälle." *VKTA Workshop: Hürden und Fallstricke bei der Charakterisierung von Abfall-Gebinden*, Dresden, Germany, June 2013.

9. R. Vasques. "Estimating anisotropic diffusion of neutrons near the boundary of a pebble bed random system." *Proceedings of International Conference on Mathematics and Computational Methods Applied to Nuclear Science & Engineering*, Sun Valley, ID, May 2013.

8. R. Engels, M. Frank, S. Furletov, J. Furletova, A. Havenith, G. Kemmerling, J. Kettler, E. Mauerhofer, D. Neike, O. Schitthelm, M. Schumann, R. Vasques. "Neutron imaging system for radioactive-waste analysis." *Proceedings of 24 SAAGAS: Seminar Aktivierungsanalyse und Gammaspektroskopie*, Munich, Germany, February 2013.

7. R. Vasques, E.W. Larsen. "Anisotropic diffusion in model 2-D pebble-bed reactor cores." *Proceedings of International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics*, Saratoga Springs, NY, May 2009.

6. E.W. Larsen, R. Vasques, M.T. Vilhena. "Particle transport in the 1-D diffusive atomic mix limit." *Proceedings of Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 2005.

5. R. Vasques, M.T. Vilhena, M. Thompson, E.W. Larsen. "State of the art of particle transport theory in stochastic media." *Proceedings of XXV CILAMCE: Iberian Latin American Congress on Computational Methods in Engineering*, Recife, Brazil, November 2004.

4. A.V. Cardona, R. Vasques, J.V.P. Oliveira. "Solução LTA_n para o problema de transporte em uma placa com uma fonte arbitrária e altas ordens de quadratura." *Proceedings of XXVI CNMAC: Congresso Nacional de Matemática Aplicada e Computacional*, São José do Rio Preto, Brazil, September 2003.

3. A.V. Cardona, R. Vasques. "Aumentando a eficiência computacional do método LTA_n." *Proceedings of XXVI CNMAC: Congresso Nacional de Matemática Aplicada e Computacional*, São José do Rio Preto, Brazil, September 2003.

2. R. Vasques, C.F. Segatto, M.T. Vilhena. "The LTS_n solution for the neutron transport equation in spherical geometry." *Proceedings of 18th ICTT: International Conference on Transport Theory*, Rio de Janeiro, Brazil, July 2003.

1. A.V. Cardona, M.T. Vilhena, J.V.P. Oliveira, R. Vasques. "The one-dimensional LTA_n solution in a slab with high order of quadrature." *Proceedings of 18th ICTT: International Conference on Transport Theory*, Rio de Janeiro, Brazil, July 2003.

Refereed Book Chapters

1. M. Wollmann da Silva, B.E.J. Bodmann, M.T. Vilhena, R. Vasques. "Influence of stochastic moments in the solution of the neutron point kinetics equation." In: C. Constanda, A. Kirsch (eds.): *Integral Methods in Science and Engineering*, Springer: Birkhauser Basel, pp 613–624 (2015).

PREPRINTS

(* Indicates advisee)

4. J.J. Kuczek*, J.K. Patel*, R. Vasques. "Modified Fokker-Planck acceleration for forward-peaked transport problems in slab geometry." *Submitted for journal publication.*

3. J.K. Patel*, L.R.C. Moraes, R. Vasques, R.C. Barros. "Transport synthetic acceleration for the solution of the one-speed nonclassical spectral S_N equations in slab geometry." *Submitted for journal publication.*

2. R.K. Palmer*, R. Vasques. "The nonclassical simplified P_2 and P_3 equations with anisotropic scattering." *Submitted for conference presentation and proceedings.*

1. L.R.C. Moraes, L.B. Barichello, R. Vasques, R.C. Barros. "The analytical discrete ordinates method applied to the nonclassical spectral S_N equations for diffusive problems." *In preparation.*

GRANTS AND FELLOWSHIPS

Funding

- Brazilian Ministry of Education: CAPES-Print Research Grant
  - Title: Modelagem Computacional do Transporte Não-classico de Particulas Neutras
  - Role: Co-PI [with R.C. Barros–UERJ, Brazil]
  - Period: 03/2019–02/2022
  - Total funds: $177,245 BRL (Brazilian Real)
- Nuclear Regulatory Commission: Faculty Development Program
  - Title: Nuclear Engineering Faculty Development
  - Role: Co-PI [with T. Aldemir–OSU)
  - Period: 09/2017–09/2020
  - Total funds: $450,000 USD
- CNPq/Brazilian Ministry of Science and Technology: Advanced and Innovative Nuclear Reactors Research Grant
  - Title: Representação Analitica da Solução de Problemas de Cinetica de Nêutrons Pontual: Efeito das Flutuações Estocasticas
  - Role: PI
  - Period: 07/2014–05/2015
  - Total funds: $49,500.00 BRL (Brazilian Real)

Fellowships

- Fulbright-Capes Doctoral Fellowship, U.S.A. Dept. of State & Brazilian Ministry of Education (2005-2009)
- CNPq Masters Fellowship, Ministry of Science and Technology, Brazil (2003-2005)
- FAPERGS Scientific Initiation Fellowship, Rio Grande do Sul State Government, Brazil (2002)

SUPERVISED STUDENTS & RESEARCHERS

Postdoctoral Advisees

1. Japan K. Patel, *The Ohio State University* June 2018 - May 2020

Ph.D. Advisees

4. Sunday A. Agbo, *The Ohio State University* August 2020 - present

3. Tomás M. Paganin, *The Ohio State University* January 2020 - present

2. John J. Kuczek, *The Ohio State University* August 2017 - present

Graduated

1. Robert K. Palmer, *The Ohio State University* January 2018 - August 2020

Date of Defense: June 22^{nd}, 2020
Dissertation: *Asymptotic Derivation of the Simplified P_N Equations for Nonclassical Transport with Anisotropic Scattering*

M.S. Advisees

Graduated

2. Ilker Makine, *University of California, Berkeley* and *Université Libre de Bruxelles* (co-advisor with R.N. Slaybaugh) — March 2017 - September 2017

Date of Defense: September 11^{th}, 2017
Thesis: *Exact Transport Representations of the Classical and Nonclassical Simplified P_N Equations with Isotropic Scattering*

1. Nitin K. Yadav, *RWTH Aachen University* (co-advisor with M. Frank) — September 2013 - March 2014

Date of Defense: March 25^{th}, 2014
Thesis: *An Extended Closure for the Levermore-Pomraning Equations in Scattering Random Media*

Other Graduate Research Advisees

2. Jinzhao Chen, *The Ohio State University* — August 2018 - December 2018

Topic: *Machine Learning for Transport Solvers*

1. Srikanth Gopalakrishnan, *RWTH Aachen University* — September 2013 - February 2014

Topic: *Neutron Imaging System for Radioactive Waste Analysis*

Undergraduate Research Advisees

4. Mingjian Lu, *University of California, Berkeley* — July 2016 - February 2017

Topic: *Optimization of 1-D Transport Solvers in Python*

3. Clay Shieh, *University of California, Berkeley* — January 2016 - May 2016

Topic: *Implementation of 1-D Transport Solvers in Python*

2. Akash Pakanati, *RWTH Aachen University* — June 2013 - March 2014

Topic: *Simulation of Photon Path-length Distributions in Atmospheric Clouds*

1. Nikhil Bandari, *RWTH Aachen University* — May 2013 - July 2013

Topic: *Image Processing Techniques Applied to Reconstruction Algorithms for Neutron Imaging*

TEACHING EXPERIENCE

The Ohio State University, Columbus

– **Professor** (Sp = Spring, Su = Summer, Au = Autumn)

- Reactor Theory: Au 2020
- Introduction to Nuclear Science and Engineering: Sp/Au 2018, Au 2020
- Nuclear Engineering at The Ohio State University: Au 2020
- Nuclear Engineering Seminar: Au 2020
- Nuclear Engineering Research: Sp/Au 2018, Sp/Au 2019, Sp/Su/Au 2020
- Neutron Slowing Down and Thermalization: Sp 2020
- Individual Studies in Nuclear Engineering: Sp 2019, Sp 2020

University of California, Berkeley

– **Guest Lecturer (Fall 2015 - Spring 2017)**

- Introduction to Numerical Simulations for Radiation Transport: 11 lectures
- Numerical Simulations in Radiation Transport: 7 lectures
- Nuclear Reactor Theory: 3 lectures
- Introduction to Nuclear Engineering: 1 lecture

RWTH Aachen University, Germany

– **Instructor**

- Advanced Topics in Transport Theory: Summer 2013

– **Recitation Leader**

- Mathematics III: Winter 2012-2013

– **Organizer and Instructor**

- MathCCES Teaching Workshop: April 2013

Fundação Getulio Vargas, Brazil

– **Professor**

- Matematica I: 2011-1, 2011-2, 2012-1
- Matematica II: 2011-2, 2012-1

University of Michigan, Ann Arbor

– **Graduate Student Instructor**

- Calculus II (Math 116): Fall 2008
- Calculus I (Math 115): Fall 2006
- Data Functions & Graphs (Math 105): Fall 2005, Fall 2009

Invited Short Courses

– **Institute of Mathematics and Statistics, Federal University of Rio Grande do Sul, Brazil**

- Particle Transport in Stochastic Media (graduate-level short course, 30 hours): December 2013

PROFESSIONAL SERVICE

– **Conference Activities**

- Member, Technical Program Committee: M&C 2021–International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Raleigh, NC (April 11-15, 2021)
- Member, Scientific Advisory Committee: 26^{th} International Conference on Transport Theory, Paris, France (September 23-27, 2019)
- Member, Technical Program Committee: M&C 2019–International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Portland, OR (August 25-29, 2019)
- Member, Organizing Committee (Student Arrangement Chair): M&C 2019–International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Portland, OR (August 25-29, 2019)
- Member, Local Organizing Committee: 25^{th} International Conference on Transport Theory, Monterey, CA (October 16-20, 2017)

– **Editorial Activities**

- Associate Guest Editor: Journal of Computational and Theoretical Transport, special issue (01/2018 - 12/2018)
- Member, editorial board: Energy Research Journal (07/2014 - 06/2016)

– **Refereeing Activities**

- Journals (in alphabetical order):

  · Annals of Nuclear Energy · Energy Research Journal · International Journal of Nuclear Energy Science and Technology · Journal of Computational and Theoretical Transport · Journal of Quantitative Spectroscopy and Radiate Transfer · Journal of Scientific Computing · Kinetic and Related Models · Medical Physics · Nuclear Engineering and Design · Nuclear Engineering and Technology · Progress in Nuclear Energy

- Conferences (in chronological order):

  · American Nuclear Society - Mathematics & Computation Division (ANS - MCD) Topical Meeting 2021 · ANS - MCD Topical Meeting 2019 · 25^{th} International Conference on Transport Theory (ICTT) 2017 · ANS - MCD Topical Meeting 2017 · ANS Student Conference 2016 · ANS - MCD Topical Meeting 2015

– **External Ph.D. Dissertation Defense and Ph.D. Candidacy Exam Committees**

- Luana Lazzari, Ph.D. Candidacy Exam in Applied Mathematics March 10, 2020
  Graduate Program in Applied Mathematics
  Universidade Federal do Rio Grande do Sul, Brazil
  Topic: Simulação do problema de transporte em domínio não homogêneo

- César Bublitz, Ph.D. Candidacy Exam in Applied Mathematics June 06, 2019
  Graduate Program in Applied Mathematics
  Universidade Federal do Rio Grande do Sul, Brazil
  Topic: Computational Methods for Radiative Transport in Cylindrical Geometry

- Eduardo S. Schneider, Ph.D. Dissertation Defense in Mathematics August 21, 2018
  Department of Mathematics and Statistics
  Bowling Green State University, Bowling Green, OH
  Topic: Exact calculations for the Lagrangian Velocity

– **Outreach Activities**

- Member, Organizing Committee: Nuclear Innovation Bootcamp - Tomorrow Today, UC Berkeley, CA (July 16-29, 2017)
- Member, Organizing Committee: Nuclear Innovation Bootcamp - Nuclear Upended, UC Berkeley, CA (August 01-12, 2016)

– **Professional Societies**

- Member, ANS - American Nuclear Society (2012 - present)
  - Mathematics & Computation Division
  - Reactor Physics Division
  - Young Members Group
  - Faculty Advisor for OSU ANS Student Section (08/2019-present)
- Member, SIAM - Society for Industrial and Applied Mathematics (2012 - present)
  - SIAG on Computational Science and Engineering
- Council Member, Brazilian Alumni Association of Fulbright Fellows (2010 - 2012)

– **Courtesy Appointments**

- Adjunct Professor, Department of Mathematics & Statistics,
  Bowling Green State University, Bowling Green, OH

– **Internal Service for OSU - Departmental Committees**

- Graduate Studies Committee (member), Autumn 2017-present
  - Admissions Subcommittee (member), Autumn 2017-present
  - Policy & Procedure Subcommittee (member), Autumn 2017-present
  - Fellowship Subcommittee (member), Autumn 2017-present
  - Served as GSC representative in the Dynamics and Kinematics Oral Qualifying Exam of Mr. Andrej Simeunovic (02/22/2019)
- Nuclear Engineering Program: Graduate Recruitment Committee (member), Autumn 2017-present
- MAE Department Chair Search Committee (member), Autumn 2019
- Faculty Search Committee: Nuclear Thermal Hydraulics (member), Autumn 2017-Spring 2018

– **Internal Service for OSU - Qualifying Exams, Candidacies, Defenses**

- Member of the Qualifying Exam Committee in Mathematics (08/2020, 01/2020, 08/2019, 01/2019)
- Member of the thesis committee (NE Masters) for Mr. Joshua Rocheleau: "An Analytical Nodal Discrete Ordinates Solution to the Transport Equation in Cartesian Geometry" (04/06/2020)
- Member of the dissertation committee (NE Ph.D.) for Mr. William C. Chuirazzi: "Combinatorial Optimization of Scintillator Screens for Digital Neutron Imaging" (03/20/2020)
- Member of the Qualifying Exam Committee in Statistics (08/2019)
- Member of the Qualifying Exam Committee in Reactor Physics and Engineering (08/2019, 08/2018)
- Member of the committee for Mr. Ibrahim Oksuz's candidacy exam (12/20/2018)
- Member of the thesis committee (NE Masters) for Mr. Andrew M. Zapp: "Design and development of an external fast neutron beam facility at the Ohio State University Research Reactor" (12/17/2018)
- Member of the committee for Mr. Boyuan Li's candidacy exam (04/30/2018)

– **Internal Service for OSU - Other Departmental Service**

- Created new NE course: "NE 2194 - Nuclear Engineering at The Ohio State University" to be offered for the first time in Autumn 2020 (Spring 2020)
- Monte and Usha Ahuja Distinguished Lecture Series
  - Hosted Dr. Anil K. Prinja from the University of New Mexico, Albuquerque (02/2020)
- Nuclear Engineering Seminar
  - Co-chair (08/2019-present)
  - Hosted Dr. Ricardo C. Barros, from State University of Rio de Janeiro, Brazil (12/2019)
  - Hosted Dr. James Bevins from Air Force Institute of Technology (12/2018)
  - Hosted Dr. Anthony Davis from NASA Jet Propulsion Laboratory (11/2018)
- Drafted content for the Nuclear Program handout material (11/2019)
- Organized Nuclear Program information session (11/22/2019)
- Member of the work group developing the Nuclear Engineering Program Strategic Plan (01/2018-03/2019)
- Organized a Recruitment Event for the Nuclear Engineering Graduate Program (10/30/2018)
- Visited ENGR 1100 (Engineering Survey) class to give a presentation and discuss undergraduate research and connecting with faculty members (10/08/2018)
- Developed a HTML Recruiting Email for the Nuclear Engineering Program (completed 02/05/2018)
- Designed syllabus for new course: ME8518 Advanced Mathematical Methods in ME, in preparation for new Math QE (12/15/2017)
- Wrote first draft of the Strategic Plan for the Nuclear Engineering Program (11/2017)

- Organized recruiting event for the Nuclear Engineering graduate program at the University of Dayton (11/29/2017)
- Organized recruiting event for the Nuclear Engineering graduate program at Case Western University (11/14/2017)

– **Internal Service for OSU - College of Engineering**

- Represented the College in the Graduate School Fair at Ohio Northern University (09/27/2017)
- Represented the College in the Graduate School Fair during the "Big Ten+ Graduate School Exposition" at Purdue University (09/25/2017)

– **Internal Service for OSU - University Level**

- Faculty Advisor for OSU ANS Student Section (08/2019-present)
- Served as Graduate Faculty Representative for the Graduate School at Mr. Fernando Lima e Morato dissertation defense in the Graduate Program in Portuguese: "Um mestre na periferia da Arcádia: a obra poética de Manuel Inácio da Silva Alvarenga no contexto do Império português do século XVIII" (05/29/2019)
- Served as Graduate Faculty Representative for the Graduate School at Mr. Andrew Hart's dissertation defense in the Department of Physics: "Search for disappearing tracks in proton-proton collisions at $\sqrt{s} = 13$ TeV" (01/26/2018)

SELECTED INVITED RESEARCH TALKS (LAST 5 YEARS)

Invited Talks

- "Nonclassical Particle Transport: Clouds, Movies, and Nuclear Reactors"
  – *Dept. of Nuclear Engineering, University of Tennessee, Knoxville, TN* *02/2020.*
- "A Spectral Method to Solve the Nonclassical Linear Boltzmann Equation"
  – *5^{th} Annual Meeting of SIAM Central States Section* *10/2019*
  Iowa State University, Ames, IW
- "The Nonclassical Linear Boltzmann Equation and Applications to Particle Transport"
  – *Dept. of Mechanical and Aerospace Engineering* *09/2017*
  The Ohio State University, Columbus, OH
  – *Dept. of Mathematics, University of Dayton, OH* *04/2016*
- "Nonclassical Transport Theory and Applications"
  – *Dept. of Nuclear Engineering and Radiological Sciences* *02/2017*
  University of Michigan, Ann Arbor, MI
  – *Dept. of Engineering Physics, University of Wisconsin, Madison, WI* *01/2017*
  – *School of Nuclear Science and Engineering* *01/2017*
  Oregon State University, Corvallis, OR
  – *Dept. of Mechanical and Aerospace Engineering* *12/2016*
  The Ohio State University, Columbus, OH
- "Nonclassical Simplified P_N Equations"
  – *Dept. of Nuclear Engineering, University of California, Berkeley, CA* *10/2016.*