



Dr. David Quesada-Saliba

Associate Professor in Computational Neuroscience
Institute for Neuro-Immune Medicine, Center for Collaborative Research

Department of Psychology and Neuroscience, College of Osteopathic Medicine, Nova Southeastern University, Davie, FL, USA

E-mail1: dquesada@nova.edu

ORCID: 0000-0001-8211-6485

Research Gate: https://www.researchgate.net/profile/David_Quesada

LinkedIn: www.linkedin.com/pub/david-quesada/1/1b/31

Scientific Degrees

2000

PhD in Physics – Faculty of Physics, University of Havana, Cuba

1990

MSc in Physics and Mathematics – Faculty of Physics, M.V. Lomonosov Moscow State University, Russian Federation.

Current Research Interests

My work is devoted to the application of Methods of Mathematical and Computational Physics in interdisciplinary subjects. Current topics of interests include:

1. **Applications of network theory and dynamical systems in neuro-physiology** – Use of Graph theory and networks as mathematical representation of connected system of neurons. Understanding the structure-function relationships via statistical and mathematical modeling.
2. **Biophysical understanding of awareness and consciousness** – Application of concepts of Quantum Physics, Critical Phenomena and Self-Organized Criticality, Quantum Machine Learning, and Information Theory in the representation and understanding the process of consciousness. Connecting person's behavior with structure-function relationships in brain science.
3. **Biometeorology, Statistical and Biophysical Modeling** – Statistical processing and modeling of the associations between weather and environmental parameters and upper respiratory tract infections, emergent viruses and asthma. Mathematical modeling of pollutant's dispersal and epidemiology in urban areas and across the respiratory tract. Influence of circadian rhythms.
4. **Nano-science Education and Biomedical Engineering Modeling and Simulation Education** – Application of new approaches in Mathematics and Physical Sciences education. Incorporation of computer technologies, story telling, modeling and simulation, as well as active learning methodologies. Fundamentals of machine learning based approaches, AI, quantum technologies and quantum computing. The representation of the educational ecosystem through networks is a topic of special interest, as well as the analysis of the information (content knowledge) flow across such networks.

Professional Experience

2023 - xxxx

Institute for Neuro-Immune Medicine, Department of Psychology and Neuroscience, College of Osteopathic Medicine, NOVA Southeastern University, Davie, FL, USA

2018 - 2023

Department of Mathematics Chairperson, Miami Dade College, Wolfson

2002 - 2018	Campus, Miami, FL, USA Assistant, Associate and Full Professor of Physics – School of Science, Technology and Engineering Management, St. Thomas University, Miami Gardens, Florida, USA.
2016 - 2017	Adjunct – Lecturer – Department of Biomedical Engineering, College of Engineering, Florida International University, Miami, Florida, USA
2012 – 2015	Adjunct – Lecturer – Miami Dade College, Miami, Florida, USA
2011 – 2013	Adjunct – Lecturer – NOVA Southeastern University, Davies, Florida, USA
1992 – 2001	Assistant Professor – Department of Theoretical Physics, Faculty of Physics, University of Havana, Cuba
1990 - 1992	Research Scientist 1 – Center of Studies Applied to the Nuclear Development, Havana, Cuba

Awards

2019	Travel award from the Colombian Physical Society to attend the XXVIII Annual meeting of the Colombian Physical Society as a guest speaker, Armenia – Quindio, Colombia.
2017	Travel award from the MSI-Reach (Reconstructing Earth Climate History) to attend the Annual Meeting of the GSA, Seattle, Washington.
2015	Travel award from the MSI-Reach (Reconstructing Earth Climate History) to attend the Paleoclimatic Professional development workshop at Texas A&M University Sediments Regional Repository, College Station, Texas.
2011	Early Career Scientist Assembly (ECSA) award from National Center for Atmospheric Research (NCAR), Boulder Colorado, USA.
2000	Outstanding Junior Researcher of the University of Havana, Cuba.
1990	Gold Diploma (Summa cum Laude), Physics Faculty, M.V. Lomonosov Moscow State University, Russian Federation.

Grants and External Funding

2016	SRI-Coordinator – STEM-TRAC (\$ 1,373,000; 2012 – 2016) Miami Dade College – St. Thomas University. Substitution of the former PI/SRI coordinator for the last year of the grant; TRAC = Transition, Retention, Advisement, and Completion. Concluded
2013	Co - PI (Researcher) in a joint grant with FIU, UM, FAU, UF, and the Script Institute in order to create a Bio-computing center for Data analysis and Biophysical modeling in Florida, NSF grant. Denied and invited to re-apply

Areas of Expertise

Physics	Theoretical methods in condensed matter physics, superconducting materials, quantum mechanics and statistical physics, thermodynamic, electronic, and transport properties of nano-materials, structure – function relationships, biophysical meteorology and computational physics.
Mathematics	Dynamical systems, ordinary and partial differential equations, numerical methods, mathematical modeling, networks, and applied differential geometry.
Statistics	Descriptive statistics, correlation analysis, ANOVA, ARIMA, K-means, cluster analysis, Monte Carlo simulation, Thermal Annealing and Bootstrapping, Cellular Automata, and Genetic Algorithms. Big data analytics and statistical analysis of complex systems.
Computing	Mathematica, WolframAlpha, Python, MATLAB/Octave, R, LaTeX, Origin, Microsoft Bundle, Linux, HTML coding. Quantum Espresso and VASP.
Program Development	Ability to build academic programs and tailor them to the needs of both, the academic and the job market. Statistical analysis and network mapping on them. Outreach and social media promotion.

Skills

Analytical, critical thinking, problem solving, creativity, computational and

algorithmic thinking, goal oriented, work on schedule, teamwork skills, communication, public speaking, adaptability, active listening, decision making, leadership skills, organization, emotional intelligence.

Publications

1. Safety and Efficacy of Autologous Non-Hematopoietic Enriched Stem Cells Nebulization in COVID-19 Patients. A Randomized Clinical Trial, Abu Dhabi 2020, Yendry Ventura-Carmenate; Fatema Mohammed Alkaabi; Yandy Marx Castillo-Aleman; Carlos Agustin Villegas-Valverde, M; Yasmine Maher Ahmed; Pierdanilo Sanna; Ayesha Abdulla Almarzooqi; Abeer Abdelrazik; Gina Marcela Torres-Zambrano; Maura Wade-Mateo; David Quesada-Saliba; Antonio Alfonso Bencomo-Hernandez; Rene Antonio Rivero-Jimenez; *Translational Medicine Communications* 6:25 (2021) <https://doi.org/10.1186/s41231-021-00101-5>
2. Microwave-assisted chemical bath deposition of PbSe thermoelectric thin film, Y. Rodríguez-Lazcano, Enue Barrios-Salgado, Juan Pablo Pérez-Orozco, J. Campos, P. Altuzar, Eliseo Llamas Regla and David Quesada-Saliba, *Journal of Applied Physics A* 127:537 <https://doi.org/10.1007/s00339-021-04682-8> (2021)
3. Dissemination, outreach, and training in Nanoscience and Nanotechnology, J. Tutor-Sanchez, D. Quesada, J. Gamio-Aranda, N. Takeuchi, A. Camacho, J. Diaz, M.F. Pilaquinga, E. Jara, R. Christoph, and D. Padilla, in *21st Century Nanoscience - A Handbook -*, 10 Volumes, Taylor&Francis (CRC Press), (2020).
4. Complex networks and machine learning: From Molecular to Social Sciences (editorial article), D.Quesada, M. Cruz-Montegudo, T. Fletcher, A. Duardo-Sanchez, and H. Gonzalez-Diaz, *Applied Sciences*, applsci-626592 <http://doi:10.3390/app9214493> (2019).
5. Effect of deposition time on the opto-electronics properties of PbS thin films obtained by microwave assisted chemical bath deposition, E. Barrios-Salgado, Y. Rodriguez-Lazcano, J.P. Perez-Orozco, J. Colin, P. Altuzar-Coello, J. Campos and D. Quesada, *Advances in Condensed Matter Physics - Special number Condensed Matter in Energy, Environment, and Beyond* (2019), vol. 2019, Article ID 5960587, <https://doi.org/10.1155/2019/5960587>
6. Nanoparticles for Environment, Engineering, and Nanomedicine, R. Seqqat, L. Blaney, D. Quesada, B. Kumar, and L. Cumbal, *Journal of Nanotechnology* ID 2850723, <http://doi.org/10.1155/2019/2850723> (2019).
7. Las nanociencias en universidades de enseñanza en artes liberales: Inserción curricular e integración de planes de estudios (Nano sciences in liberal arts colleges: curriculum embedding and programs integration), D. Quesada, *Momento - Revista de Física* **56E**, 22 – 33 (2018).
8. Nano informatics and modeling for promoting the nano sciences, D. Quesada, *Momento – Revista de Física* **54E**, 28 (2017).
9. Time series analysis and forecast of respiratory conditions in Florida, De la Plaza P., Quesada D., *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, Sciforum Electronic Conference Series, Vol. 3, 07003; <http://doi:10.3390/mol2net-03-05103> , <http://sciforum.net/conference/161/paper/5103>
10. Assessment of Microclimatic conditions of St. Thomas University forest, Loring K. and Quesada D., *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, Sciforum Electronic Conference Series, Vol. 3, 07003; <http://doi:10.3390/mol2net-03-05101> , <http://sciforum.net/conference/161/paper/5101>
11. Biomedical modeling of Magnetic Nanoparticles Fluid Hyperthermia for Cancer treatment, Barreat M.V. and Quesada D., *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, Sciforum Electronic Conference Series, Vol. 3, 07003; <http://doi:10.3390/mol2net-03-05100> , <http://sciforum.net/conference/161/paper/5100>
12. Time series analysis of the EEG signals for Epilepsy seizure forecast, Cing M.S. and Quesada D., *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, Sciforum Electronic Conference Series, Vol. 3, 07003; <http://doi:10.3390/mol2net-03-05102> , <http://sciforum.net/conference/161/paper/5102>

13. The seasonality of upper respiratory tract infections and their relationship to asthma. Quesada, D.; Alejo, A. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, Sciforum Electronic Conference Series, Vol. 2, 07003; <http://doi:10.3390/mol2net-02-07003>, (2016).
14. Effect of Brain network topologies on the synchronization of neuronal oscillations: Is this the gateway to the understanding of Central Nervous disorders? Quesada, D.; Astudillo, N.; Garcia-Russo, M. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*; Sciforum Electronic Conference Series, Vol. 2, 07004; <http://doi:10.3390/mol2net-02-07004>, (2016).
15. Mathematical Modeling of the Optical response of photovoltaic cells. Quesada, D.; Cotton, J.; Morales, H. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, 5 December 2016–25 January 2017; Sciforum Electronic Conference Series, Vol. 2, 2016 ; <http://doi:10.3390/mol2net-02-03834>, (2016)
16. Modeling the oscillating Belousov - Zhabotinsky chemical reaction. Quesada, D.; Marrero, J.; Centeno, S. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, 5 December 2016–25 January 2017; Sciforum Electronic Conference Series, Vol. 2, 2016 ; <http://doi:10.3390/mol2net-02-03835>, (2016).
17. Belousov-Zhabotinsky Reaction: Effects of Magnetic Field Variations. Fernandez-Torres, L.; Penton, A.; Gamboa, B.; Quesada, D. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, 5 December 2016–25 January 2017; Sciforum Electronic Conference Series, Vol. 2, 2016 ; <http://doi:10.3390/mol2net-02-03838>, (2016).
18. Braess Paradox in Electrical Networks; When more might mean less. Quesada, D.; Rojas, J.; Alonso, A. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, 5 December 2016–25 January 2017; Sciforum Electronic Conference Series, Vol. 2, 2016 ; <http://doi:10.3390/mol2net-02-03836>, (2016).
19. Assessment of the impact of micrometeorological conditions on plants growth. Quesada, D.; Jean-Jacques, J.; Aponte, R. *In Proceedings of the MOL2NET, International Conference on Multidisciplinary Sciences*, 5 December 2016–25 January 2017; Sciforum Electronic Conference Series, Vol. 2, 2016 ; <http://doi:10.3390/mol2net-02-03837>, (2016).
20. The ARPES experiment and the superconducting gap symmetry: How far can we determine the gap symmetry? D. Quesada, *Int. J. Mod. Phys. B* **17**, 3559 (2003).
21. The Van Hove singularity as a source of anomalies in NIN and NIS tunneling experiments, D. Quesada, *Physica C* **364-365**, 170 (2001).
22. Implications of the pairing symmetry and the van Hove singularity for the normal and superconducting properties of cuprates, D. Quesada and R. Peña, *Physica C* **341-348**, 1683 (2000).
23. Thermodynamic functions within the van Hove BCS model: symmetry mixing effects, D. Quesada, R. Peña and C. Trallero-Giner, *Physica C* **322**, 169 (1999).
24. Analysis of the approximations used in the van Hove BCS – theory, D. Quesada, A. Rubio-Ponce, R. Peña, R. Baquero, C. Trallero-Giner, Los Alamos Database arxiv: cond-mat/9905081v1 (1999).
25. Thermodynamics of the van Hove BCS model: Mixed gap symmetries, D. Quesada, R. Peña and C. Trallero-Giner, *High Temperature Superconductivity*, AIP Conference Proceedings Vol 483, Ed. by S.E. Barnes, J. Ashkenazi, J. Cohn, F. Zuo, AIP Woodbury New York (1999).
26. La Física de Sistemas Complejos: Un reto a la enseñanza moderna (“The Physics of Complex Systems: A challenge to modern higher education”), D. Quesada, *Proceedings of the Iberoamerican workshop on Physics teaching*, Univ. of Havana, Jan. 20-24, (1997).
27. BCS Universal Ratios within the van Hove Scenario, R. Baquero, D. Quesada and C. Trallero-Giner, *Physica C* **271**, 122, (1996).
28. Are Universal Relations within the van Hove Scenario possible? R. Baquero, D. Quesada and C. Trallero-Giner, in *Proceedings of the 8th Latin American Congress on Surface Science, Vacuum and their Applications*, Cancun 1994, *Surfaces, Vacuum and their Applications*, Ed. by I. Hernández-Calderón and R. Asomoza, AIP Press, Woodbury, New York (1996).

29. BCS theory in systems with van Hove singularity in the electronic spectrum, D. Quesada, C. Trallero-Giner y R. Baquero, *Rev. Mex. Fis.* **41**, 1397, (1995).
30. M. Mora, C. Cruz, A. Leyva, J.C. Suarez, D. Quesada, *Nucleus* 18, 21 (1995).
31. On the Van Hove Scenario, R. Baquero, D. Quesada and C. Trallero-Giner, in *Proceedings of the Second International CINVESTAV Superconductivity Symposium- Manifestations of the Electron-Phonon Interaction*, Mexico, 1992, Ed. by R. Baquero, World Scientific, Singapore, (1994).
32. Estimation of the Electron-Phonon interaction from GP-DOS measurements in 123 compounds, D. Quesada and A.R.R. Papa, in *Proceedings of the Second International CINVESTAV Superconductivity Symposium- Manifestations of the Electron-Phonon Interaction*, Mexico, 1992, Ed. by R. Baquero, World Scientific, Singapore, (1994).
33. Chaotic Approach to Fractional Quantum Hall Effect, D. Quesada, O. Sotolongo and R. Mansilla, in *Proceedings of Workshop on Optoelectronic Materials and their Applications*, Havana, 1993, Ed. by F. Leccabue, O. de Melo Pereira, I. Hernández Calderón, Edizioni ETS, (1993).
34. γ - Cobalt-60 Radiation Effects in High Temperature Superconductors, A. Leyva-Fabelo, J.C. Suarez-Sandín, M. Mora-Alfonso, C.M. Cruz-Inclán, D. Quesada-Sáliba, A. Gómez-González, *Nucleus* 13, 3, (1992).
35. Ac Magnetic Susceptibility in High Temperature Superconductors irradiated with γ -Rays, A. Leyva, J.C. Suarez, M. Mora, C.M. Cruz and D. Quesada, *Phys.Stat.Solidi (a)* 134, K 29, (1992).
36. Magnetic Field distribution in superconducting grain of spherical shape, D. Quesada, in *Proceedings of the Conference: Magnetism, Magnetic Materials and their Applications*, Section III (Part 2), Havana, 1991, Ed. by J.L. Sánchez Llamasares and F. Lecabue, IOP Publishers.

Conferences, Invited Lectures, and Workshops (last 10 years)

1. **“Analysis of the sound signals generated during breathing and their association with respiratory conditions”**, S. Rosenblatt and D. Quesada-Saliba, MDC 2022 Undergraduate Research Symposium, MDC North Campus (October 2022).
2. **“Modeling COVID-19 epidemics: the role of social pressure, economic burden, seasonality and lockdowns”**, M.Perez, N.Brechja, and D. Quesada-Saliba; **“Modeling the immune response during the COVID-19 infection and the effect of stem cells on patient’s recovery”**, C. Gonzalez and D. Quesada-Saliba, MDC 2021 Undergraduate Research Symposium, MDC North Campus (September 2021).
3. **“How Mathematical Modeling does help Life Sciences?”**, **“Space Flights Mathematics: From Jules Verne projectiles to Star Trek AI”**, **“Earth’s Day Mathematics: Weather, Climate, Health, and Biometeorology”**, Open Lectures during the 2021 Mathematics Awareness Month, Miami Dade College, April 2021 – Zoom Open to the Public Lectures.
4. **“About the Abel Prize 2021: the bridge between Mathematics and Computer Science”**, Webinar sponsored by the Department of Mathematics at Wolfson Campus, MDC, March 30, 2021 – Zoom Open to the Public Lecture.
5. **“From Pi to the Quantum and Data Revolutions: Randomness, Uncertainties, and More”**, Webinar sponsored by ARCOS and the Department of Mathematics at Wolfson Campus, MDC, March 12, 2021 – Blackboard Collaborate Open to the Public Lecture.
6. **“Mathematical Modeling in Biomedical Applications: From Asthma to COVID-19. The Force Awakens”**, Webinar sponsored by the SPADE STEM Grant at Miami Dade College, December 2020 – Blackboard Collaborate Open to the Public Lecture.
7. **“Hispanic Heritage in STEM: Be proud of your past, embrace the future”**, Webinar during the 2020 Hispanic Heritage Month Week at Miami Dade College, October 2020 – Blackboard Collaborate Open to the Public Lecture.

8. **“Mathematical Modeling as an Active Learning Approach in College Education: Challenges and Potentials”**, Group Talk delivered for the Discipline of Mathematics at Miami Dade College, Annual Convocation 2020, Kendall Campus MDC, March 2020.
9. **“Modelación Matemática de Celdas Fotoeléctricas de capas múltiples: Optimización de la eficiencia de conversión”**, **“ Superconductividad, Informática de Materiales, Computación Cuántica y Fases Topológicas de la Materia”**, Plenary Invited Talks at NANODyF 2020 (done via Zoom), San Salvador, El Salvador Jan – Feb 2020.
10. **“Física Computacional y Modelación Matemática en Ciencia de Materiales y Biomedicina (Computational Physics and Mathematical Modeling in Materials Science and Biomedicine)”**, Physics Colloquium at the Department of Physics, Universidad del Atlántico, Barranquilla, Colombia, September 17, 2019.
11. **“Biometeorology of Asthma: From statistical and biophysical modeling to product design”**, D. Quesada, invited Plenary Talk presentation at the XXVIII Annual Meeting of Colombian Physical Society, September 9 – 12, 2019, Universidad del Quindío, Armenia, Colombia.
12. **“Computational Physics and Machine Learning in Materials Science”**, D. Quesada, oral presentation at the XXVIII Annual Meeting of Colombian Physical Society, September 9 – 12, 2019, Universidad del Quindío, Armenia, Colombia.
13. **“Modeling via gene expression programming of the mean grain size of nano-structured particles synthesized via mechanical alloying and ball milling”**, J.A. Ruidiaz, Z.I. Camaano-DeAvila, D. Quesada, oral presentation at the XXVIII Annual Meeting of Colombian Physical Society, September 9 – 12, 2019, Universidad del Quindío, Armenia, Colombia.
14. **“Modeling the effects of Weather seasonality and urban pollution on asthma incidence and prevalence”**, M. Castillo and D. Quesada, **“Analyzing the feasibility of using Twitter as a social media predictor of Asthma outbreaks”**, M. Deus and D. Quesada, **“About the implementation of an Intelligent Expert System for Asthma Risk Analysis (IESARA) using mobile technologies”**, F. Bello and D. Quesada, **“Mathematical modeling via Computational Fluid Dynamics (CFD) of the Upper Respiratory track Aerodynamics”**, C. Dominguez, M. Castillo, and D. Quesada, and **“Modeling materials science electrical properties of thin films photovoltaic cells”**, S. Apter and D. Quesada, Life Science South Florida Annual Symposium 2019, Florida Atlantic University, West Palm Beach, FL April 2019.
15. **“Translating Climate-oriented Professional Development Experiences into Liberal Art education via content embedding across curriculum”**, D. Quesada, Annual Meeting of the GSA, October 21 – 25, 2017, Seattle, Washington.
16. **“Materials Science Informatics and Nano-Informatics – The art of integrating data science and machine learning into the search for new materials”**, D. Quesada, III Congreso Internacional de Nanociencias y Nanotecnologías, August 28 – September 2, 2017 Quito, Ecuador.
17. **“Superconductivity and Nano sciences – Materials properties, new technologies and the future of the Universe”**, D. Quesada, Semana de la Nanociencia y la Nanotecnología (SNNC 2017), August 28 – September 2, 2017 Quito, Ecuador.
18. **“The seasonality of upper respiratory tract infections and their relationship with asthma”**, D. Quesada, A. Alejo, **“From time series to brain networks: Analysis of brain network dynamics in case of epilepsy”**, D. Quesada, M. Garcia-Russo, and N. Astudillo, 2017 Annual Meeting Florida Academy of Science, Florida Polytechnic University, March 10 – 11, 2017 Lakeland, FL.
19. **“From statistical analysis to epidemic modeling: Virus-induced asthma in South Florida”**, D. Quesada, A. Alejo, Y. Davila, and A. Perez, and **“From time series to brain networks: Analysis of brain network dynamics in case of epilepsy”**, D. Quesada, M. Garcia-Russo, and N. Astudillo, 50th Annual Meeting of the Mathematical Association of America, Florida Section, February 17 – 18, 2017 Florida State College, Sarasota, FL.

20. **“Understanding asthma through biomedical modeling: From weather and environmental quality variability to upper respiratory tract infections”**, D. Quesada, Y. Davila, A. Perez, and A. Alejo, 2017 Annual Summit Florida Asthma Coalition, February 3, 2017 Valencia College, Lake Nona, Orlando, FL.
21. **“From statistical analysis to mathematical system modeling: Respiratory health in South Florida”** and **“From time series to brain networks: Analysis of brain network dynamics in case of epilepsy”** D. Quesada, (oral presentation) Wolfram Technology Conference, October 18 – 21, 2016 Urbana-Champaign, IL.
22. **“Influencia de la distribución del tamaño de punto cuántico en la respuesta óptica de celdas fotovoltaicas a base de puntos cuánticos (Influence of size distribution of quantum dots on the optical response of quantum dots-based photovoltaic cells)”** D. Quesada (oral presentation) NanoPeru - Semana de la Nanociencia y la Nanotecnología, (SNNC 2016) August 3 – 7, 2016 Lima, Peru.
23. **“Nano-ciencias e Informática: Nano-informática (Nano-sciences and Informatics: Nanoinformatics)”** D. Quesada, (oral presentation) Semana de la Nanociencia y la Nanotecnología, (SNNC 2016) August 3 – 7, 2016 Lima, Peru.
24. **“Modelaciones Matemáticas en Nano-ciencias y Nano-medicina (Mathematical modeling in nano-science and nano-medicine)”** D. Quesada, (oral presentation) Semana de la Nanociencia y la Nanotecnología, (SNNC 2016) August 3 – 7, 2016 Lima, Peru.
25. **St. Thomas University First International Conference on Climate Change**, Round Table – Social Awareness, Education, and Potential Impacts, February 2016, Miami Gardens, Florida, USA.
26. **“Análisis del vínculo entre Topología de las Superficies de Fermi, Simetría de Brecha y Capacidad Calorífica**, (Analysis of the link between the Topology of the Fermi surface, the gap symmetry and the specific heat)” D. Quesada (oral presentation) Semana de la Nanociencia y la Nanotecnología, (SNNC 2015) October 5 – 9, 2015 Barranquilla, Colombia.
27. **“Nano-ciencias como tema integrador en formación de pregrado**, (Nano-science as an integrator in undergraduate education)” D. Quesada, (oral presentation) Semana de la Nanociencia y la Nanotecnología, (SNNC 2015) October 5 – 9, 2015 Barranquilla, Colombia.
28. **“Análisis estadístico y de simulación de la influencia del tamaño de partícula en la salud respiratoria**, (Statistical analysis and simulation of the impact of grain size on the respiratory health)” D. Quesada (oral presentation) Semana de la Nanociencia y la Nanotecnología, (SNNC 2015) October 5 – 9, 2015 Barranquilla, Colombia.
29. **“Biometeorology of Asthma in South Florida: From Statistical Analysis to Mathematical Modeling,”** D. Quesada, Society for Mathematical Biology Annual Meeting, June 29 – July 3, 2015, Georgia State University, Atlanta, GA 2015
30. **“MSI-REaCH Advanced Professional Development Program”** Gulf Coast Repository at College Station, TX, June 21 – 27, 2015.
31. **“Educational Technologies: Challenges and Values,”** D. Quesada, Plenary Session (keynote speaker) Miami Dade College Mathematics Retreat 2015, MDC Hialeah Campus, Hialeah 2015.
32. **“Diversity in support of diversity: Diversity of offerings of AMS Climate Studies for a diversity of student population,”** D. Quesada, R.M. Jones, B.C. Hedquist, T.E. Gill, and J. Sheermohamed (poster presentation) 24th Symposium on Education, 95th American Meteorological Society Annual Meeting, Phoenix, AZ January 4 – 8, 2015.
33. **“Computing the Acclimatization Thermal Stress Index (ATSI) for Miami Dade, Florida,”** D. Quesada (oral presentation) Sixth Conference on Environment and Health, 95th American Meteorological Society Annual Meeting, Phoenix, AZ January 4 – 8, 2015, and Florida Academy of Science Annual Meeting 2015 (oral presentation), St. Leo University, Tampa 2015.
34. **“Dispersion of pollutants based on a reaction-diffusion model,”** D. Quesada (poster presentation) Sixth Conference on Environment and Health, e 95th American Meteorological Society Annual Meeting, Phoenix, AZ January 4 – 8, 2015, and Florida Academy of Science Annual Meeting 2015 (oral presentation), St. Leo University, Tampa 2015.
35. **“Ingenierías, Informática y Aplicaciones Multidisciplinarias”**, (Invited oral presentation) Segundo Congreso Internacional de Informática Aplicada e Ingeniería Industrial CIIAI 2014

- (2nd International Congress on Applied Informatics and Industrial Engineering, CIIAI 2014), Tecnologico de Misantla, Veracruz, Mexico, November 13 – 15, 2014.
36. **“Thermoregulation and periodically forced SEIR model: Understanding asthma seasonality in South Florida,”** D. Quesada (poster presentation) International Congress of Biometeorology ICB 20, Cleveland, OH September 28 – October 2, 2014 and (poster presentation) Oceans and Human Health, Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, Coral Gables, FL November 3, 2014.
 37. **“Technologies for Education: Values and Challenges,”** D. Quesada (oral presentation), 36th Annual Humanities and Technology Association Conference, St. Thomas University, Miami Gardens FL, November 6 – 8, 2014
 38. eMerge – America: Modern Technologies and Innovation, Miami Beach Convention Center, Miami Beach, FL May 5 – 7, 2014.
 39. **“Modeling El Nino Southern Oscillation (ENSO): Interplay of memory and delayed-action effects,”** D. Quesada (oral presentation) 78th Annual Meeting of the Florida Academy of Science, Indian River College, Ft. Pierce, FL March 2014
 40. **“How far the periodically forced SIR model accounts for asthma seasonality in South Florida,”** D. Quesada (oral presentation) 78th Annual Meeting of the Florida Academy of Science, Indian River College, Ft. Pierce, FL March 2014
 41. **“Modeling El Nino Southern Oscillation and its interaction with the Atmosphere by combining the Delayed Action Oscillator and the Lorenz Models,”** Hanser Castro and David Quesada (poster presentation) 94th American Meteorological Annual Meeting, Student Research Symposium, Atlanta Georgia, February 6 - 10, 2014.
 42. **“Understanding the impact of air quality and weather conditions on respiratory health in Miami Dade and Broward Counties in South Florida,”** David Quesada (poster presentation) 94th American Meteorological Society, Annual Meeting, Fifth Symposium of Weather and Health, Atlanta Georgia, February 6 - 10, 2014.
 43. **“Increasing climate science awareness of non science majors: How to get their attention through online climate studies?”** David Quesada (poster presentation) 94th American Meteorological Annual Meeting, Education Symposium, Atlanta Georgia, February 6 - 10, 2014.
 44. **“Modeling the neuro-endocrine and immune responses during asthma episodes: Role of stress-strain factors,”** D. Quesada (oral presentation) ; **“About the possibility of using strain-stress thermal indexes to predict human response to changing weather,”** D. Quesada (oral presentation); **“A combined analysis of air quality and weather conditions favorable for inversions and their impact on respiratory health in Miami Dade and Broward,”** A. Perez, Y. Davila, M. Generani, L. Perez-Cernuda, and D. Quesada (poster presentation); **“Mathematical modeling of CO₂ dynamics: Contrasting compartment and Lotka-Volterra models,”** V. Iglesias and D. Quesada (poster presentation); **“Modeling the interaction of a delayed action oscillator with a Lorenz dynamical system: Implications for the ENSO-Atmosphere interaction,”** H. Castro and D. Quesada (poster presentation) 77th Annual Meeting of the Florida Academy of Science, Barry University, Miami Shores, FL March 2013.
 45. **“Influence of weather and air quality conditions on the physiological response to cold weather stress: Impact on Asthma exacerbations in Miami Dade, Florida,”** D. Quesada, A. Perez, Y. Davila, M. Generani, and L. Perez-Cernuda (poster presentation); **“About the use of WeatherBug Achieve in entry level research undergraduate experience projects: Combining weather, physiology, engineering, and mathematics,”** D. Quesada, G. Gonzalez, S. Gonzalez, V. Iglesias, H. Castro, A. Perez, and H. Rodriguez-Gallo (oral presentation) 93rd American Meteorological Annual Meeting, Forum of Education, Austin Texas January 6 - 10, 2013.
 46. **“Learning about trigonometric functions, periodicities and cycles: Impact of weather and climate on sustainable growth”** and **“Climate Changes, Sustainable development, Theory of Games and Theory of Networks: What do they have in common?”** – Invited oral presentation Miami Dade College – North Campus, Miami April 2013.
 47. **“Biometeorology of asthma in Miami Dade, Florida”**, 2012 Florida Asthma Leadership and Planning Meeting (Florida Asthma Coalition), St. Petersburg, FL August 2, 2012.

48. 2. **“Contrasting surface ozone and particulate matter measurements with meteorological conditions in South Florida and its possible impacts on the number of Asthma cases: Five years of correlations”**, D. Quesada (poster presentation) 76th Annual Meeting Florida Academy of Sciences, University of South Florida, Tampa, March 16 – 17 2012.
49. 3. **“Contrasting surface ozone and particulate matter measurements with meteorological conditions in South Florida and its possible impacts on the number of Asthma cases: Five years of correlations”**, D. Quesada (oral presentation) 10th Annual Climate Prediction Application Science Workshop (CPASW), Miami, FL March 13 – 15, 2012.
50. **“The Science behind data analysis and processing”**, Mathematics Awareness Month, Invited oral presentation Miami Dade College, Miami April 2012.
51. **“How far weather variability influences seasonal asthma episodes: Three years of correlations in Miami Dade, Florida”**, D. Quesada (oral presentation) Florida Academy of Sciences Annual Meeting, Florida Institute of Technology, Melbourne, Florida March 11 - 12, 2011.
52. **“Analysis of three years correlations between weather variability and seasonal asthma episodes in Miami Dade, Florida”**, D. Quesada (oral presentation), Second Environment and Health Symposium at the 91th Annual Meeting of the American Meteorological Society, Seattle, Washington, January 23 – 27, 2011.
53. **“Unraveling Complex Systems”** Mathematics Awareness Month, Invited oral presentation Miami Dade College, Miami April 2011.
54. **“About the possible influence of the weather on asthma episodes: St. Thomas University and surrounding communities”**, D. Quesada, (poster presentation) First Environment and Health Symposium at the 90th Annual Meeting of the American Meteorological Society, Atlanta Georgia, January 17 – 22, 2010.
55. **“Preparing Science Teachers: Strong emphasis on Science content course work in a Master’s program in Education”**, Edward A. Ajhar, E. Blackwell, D. Quesada, (poster presentation – Astronomy Education session) 216th AAS Meeting, Miami FI May 23 – 27, 2010.

Teaching Experience

I have lectured at Colleges and Universities for 28 years, dealing with diversity in the United States of America as well as in Cuba, the Russian Federation, Mexico, and Colombia. I am skilled in program development and the integration of different technologies (Blackboard, Canvas, and Computational Packages for Simulation) in teaching. My vision of education is that it constitutes the gateway for innovation and research, and also, it can be oriented to stimulate within students the desire for critical thinking and the ability to connect concepts from different areas in order to achieve a multidisciplinary approach in problem solving.

I am a skilled professional in online education and blended options (Blackboard, Canvas, Zoom, Google Meet, Teams). I am also capable to maintain an audience interested while doing outreach. I do believe in, and adhere to values of integrity and rigor in education.

I include below my professional experience as an instructor, and subjects that I have taught.

1. School of Science Technology and Engineering Management, St. Thomas University.

Teaching Period: From May 2012 – May 2018

Typical teaching load 12 undergraduate credits per semester – 4 courses

Subjects Taught	State code	Mean class size	Frequency per week	Times it has been taught
Mathematics				

Introductory Algebra	MAT 0024	30	3	9
Intermediate Algebra	MAT 1033	30	3	9
Pre-Calculus Algebra	MAC 1140	35	3	13
Pre-Calculus Trigonometry	MAC 1157	25	3	5
Mathematics for Liberal Arts	MGF 1106	25	2	6
Applied Statistics	STA 2023	25	2	10
Discrete Mathematics	MAD 3107	20	3	3
Business Calculus	MAC 2322	30	2	3
Calculus I	MAC 2311	36	3	3
Calculus II	MAC 2312	12	3	2
Calculus III	MAC 2313	7	3	8
Differential Equations	MAP 2302	6	2	9
Advanced Statistics	STA 3164	4	2	1
Linear Algebra	MAS 3105	6	2	4
Game Theory	MAP 4180	4	3	2
Complex Variables	MAA 4402	5	2	3
Graph Theory and Networking	MAD 3300	7	2	4
Introduction to Math. Modeling	MAP 3103	3	3	2
Numerical Analysis	MAD 3401	6	2	3
Partial Differential Equations	MAP 4401	3	2	1
Intro. To Dynamical Systems		4	2	2
Physics and Physical Sciences				
Introductory Physics	PHY 1055	18	3	4
College Physics 1	PHY 2053	12	3	5
College Physics 2	PHY 2054	12	3	4
University Physics 1	PHY 2048	6	3	8
University Physics 2	PHY 2049	6	3	5
Modern Physics	PHY 3106	6	3	2
Solid State Physics	PHY 4201	5	3	1
Atmospheric Physics	MET 4420	6	2	1
Introduction to Meteorology	MET 1010	16	2	10
Astronomy	AST 1002	16	2	6
Solar System Astronomy	AST 2100	6	1	2
Introduction to Astrobiology	AST 2037	6	1	2
Earth and Space Science	ESC 1000	6	1	1

2. College of Engineering, Florida International University – Department of Biomedical Engineering

Teaching period: January 2016 – 2017

Adjunct Lecturer

Subjects Taught	State code	Mean class size	Frequency per week	Times the subject has been taught
Introduction to Biomedical Engineering	BME 1008C	90	2	2
Biomedical Engineering Modeling and Simulation	BME 2740	37	3	3

3. Miami Dade College.

Teaching period: May 2002 – August 2016

Adjunct Part Time Instructor

June 2018 – Present

Department of Mathematics

Chairperson

Subjects Taught	State code	Mean class size	Frequency per week	Times the subject has been taught
Pre Algebra Mathematics	MAT 1033	35	2	2

College Algebra	MAC 1105	35	2	14
Pre-Calculus and Trigonometry	MAC 1147	35	2	13
Trigonometry	MAC 1114	32	2	4
Calculus I	MAC 2311	30	2	5
Calculus II	MAC 2312	20	2	2
Calculus III	MAC 2313	16	2	4
Business Calculus	MAC 2233	30	2	6
Discrete Structures	MAD 3107	12	1	1
Linear Algebra	MAS 3105	12	1	2
Introductory Applied Physics	PHY 1004	32	2	1
College Physics 1	PHY 2053	30	2	4
Descriptive Astronomy	AST 1001	35	1	4
Energy in the Natural Environment	PSC 1515	30	1	5

4. NOVA Southeastern University.

Academic Position: August 2011 – December 2014 Adjunct Part Time Instructor

Subjects Taught	State code	Mean class size	Frequency per week	Times the subject has been taught
MAT – 2020 Applied Statistics	STA 2023	15	2	3
MAT – 3020 Applied Statistics	STA 2023	15	2	1

5. Faculty of Physics, University of Havana, Cuba.

Academic positions: May 1992 – August 1997

Full Time Instructor

August 1997 – February 2001

Full Time Assistant

Professor

Typical teaching load 6 undergraduate credits per semester –2 courses

Subject Taught	State code	Mean class size	Frequency per week	Times the subject has been taught
Quantum Mechanics	PHY 4604	30	2	2
Theoretical Mechanics	PHY 4221	30	2	2
Electrodynamics	PHY 4323	30	2	2
Mathematical Analysis I	MAC2311	30	2	2
Mathematical Analysis II	MAC 2313	30	2	2
Linear Algebra	MAS 3105	30	2	3
Algebra and Analytic Geometry	MAC 1147	30	4	5