

# Curriculum Vitae



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## PERSONAL DETAILS

- **Date of Birth:** 8-April-84
- **Nationality:** Colombian

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## WORK EXPERIENCE

- Visiting Scientist  
Centro Internacional de Ciencias A. C.  
México, Cuernavaca, Morelos. Since October 2020.
- Postdoctoral Position  
Instituto de Física, UNAM  
México, Ciudad de México. March 2018 - January 2020  
Research group head: Carlos Bunge
- Postdoctoral Position  
Instituto de Ciencias Físicas, UNAM  
México, Cuernavaca, Morelos. April 2017-November 2017.  
Research group head: Francois Leyvraz
- Postdoctoral Position  
Instituto de Ciencias Físicas, UNAM  
México, Cuernavaca, Morelos. November 2015-February 2017.  
Research group head: Thomas H. Seligman
- Postdoctoral Position  
Texas A&M University at Galveston,  
United States, Texas. July 2014-October 2015.  
Research group head: Douglas Klein

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## EDUCATION

- R Basics certified  
HarvardX on edX,  
Credential ID: 6a3c1340009741c8baed3a0758c94c2c, 2021.

- PhD in Physics  
Universidad Nacional Autónoma de México (UNAM), Instituto de Ciencias Físicas, Cuernavaca, México. April, 2014.  
Tesis title: *Geometric and dynamics consequences of multiple adsorption of Lithium and other alkalines on polyacenes, poly-paraphenyls and flake of graphene.*  
Supervisor: Thomas Henry Seligman Schurch, Professor, Instituto de Ciencias Físicas, UNAM.
- Master of Science in Physics  
Universidad Nacional Autónoma de México (UNAM), Instituto de Ciencias Físicas, Cuernavaca, México. March, 2011.  
Degree earned within a PhD program
- B.Sc. in Physics  
Universidad del Valle (UV), Departamento de Física, Cali, Colombia. January, 2008.  
Tesis title: *Graphs: entanglement and decoherence*  
Supervisor: John Henry Reina Estupiñan, Professor of the department of Physics, UV.

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## GRANTS

- Postdoctoral Fellowship, DGAPA, UNAM, México, 2018-2020.
- Postdoctoral Fellowship, CONACyT, México, 2015-2017.
- Postdoctoral Fellowship, Welch Foundation of Houston, BD-0894, Texas, 2014-2015.
- Doctoral Fellowship, CONACyT, México, 2008-2013.
- Undergraduate grants based on academic merit, Universidad del Valle, Cali, Colombia, 2005.
- High School Fellowship based on academic merit: Cedit San Pablo, Bogotá, Colombia, 1996-1999.

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## HONOURS

- Level I, National System Of Researchers (SNI), Mexico. Since 2018.
- Honorary undergraduate thesis, Universidad del Valle, Cali, Colombia, 2008.
- Undergraduate honorary recognition on academic merit, Universidad del Valle, Cali, Colombia, 2005.
- The best graduate, High School: Cedit San Pablo, Bogotá, Colombia, 2000.

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## PROFESSIONAL BACKGROUND

- Theoretical Physics: Emphasis: Molecular Physics, Ab-initio Calculations, Density Functional Calculations (DFT), Quantum Transport Calculations, Chemical Physics, Random Matrix Theory, Quantum Computation (QC) and Quantum Information (QI).

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## PUBLICATIONS

### Published

- Thomas Stegmann, John A. Franco-Villafañe, Yenni P. Ortiz, Michael Deffner, Carmen Herrmann, Ulrich Kuhl, Fabrice Mortessagne, Francois Leyvraz, and Thomas H. Seligman, "Current vortices in aromatic carbon molecules", *Phys. Rev. B* 102 075405 (2020). DOI: [10.1103/PhysRevB.102.075405](https://doi.org/10.1103/PhysRevB.102.075405)
- Douglas J. Klein Yenni P. Ortiz Laimutis Bytautas, "Conjugated-carbon nanostructures: Emergences", *Int J Quantum Chem*, qua26367 (2020). DOI: [10.1002/qua.26367](https://doi.org/10.1002/qua.26367)
- Klein, D.J., Goswami, T., Ortiz, Y.P. "Translationally symmetric graphene strips". *J Math Chem* 58, 1014-1024 (2020). DOI: [10.1007/s10910-020-01112-7](https://doi.org/10.1007/s10910-020-01112-7)
- Ortiz, Y.P., Klein, D.J. and Liebman, J.F., "Paradigms and paradoxes. Tetrahedral units: dodecahedral super-structures". *Struct Chem*, 29,1:89-96 (2018). DOI: [10.1007/s11224-017-1003-2](https://doi.org/10.1007/s11224-017-1003-2)
- Yenni P. Ortiz, Thomas Stegmann, Thomas H. Seligman, "Chains of benzenes with lithium atoms adsorption: Vibrations and spontaneous symmetry breaking". *Chem. Phys. Lett.* vol. 684, 86-90 (2017). DOI: [10.1016/j.cplett.2017.06.033](https://doi.org/10.1016/j.cplett.2017.06.033)
- Thomas Stegmann, John A. Franco-Villafañe, Yenni P. Ortiz, Ullrich Kuhl, Fabrice Mortessagne and Thomas H. Seligman, "Microwave emulations of transport in polyacetylene". *Phys. Lett. A*, vol 381, 1:24-29 (2017). DOI:[10.1016/j.physleta.2016.09.037](https://doi.org/10.1016/j.physleta.2016.09.037).
- Alexandru T. Balaban, Yenni P. Ortiz, Douglas J. Klein and Debojit Bhattacharya, "Energies for cyclic and acyclic aggregations of adamantane sharing six-membered rings". *Croat. Chem. Acta* 89(4):1-8 (2017). DOI: [10.5562/cca3055](https://doi.org/10.5562/cca3055)
- Y. Ortiz, D. Bhattacharya, D. J. Klein, and J. F. Liebman, "Super-Molecules". *Rev. Roum. Chim.*, 61, 4-5 p 269-276, (2016)
- Debojit Bhattacharya, Douglas J. Klein and Yenni Ortiz, "The Astounding Buckyball Buckyball". *Chem. Phys. Lett.* 647:185-188 (2016). DOI:[10.1016/j.cplett.2016.01.069](https://doi.org/10.1016/j.cplett.2016.01.069).
- Alexandru T. Balaban, Debojit Bhattacharya, Douglas J. Klein and Yenni P. Ortiz, "Energies for cyclic and acyclic aggregations of adamantane and diamantane units sharing vertices, edges, or six-membered rings". *Int J. Quantum Chemistry*, 116:113-122 (2016). DOI:[10.1002/qua.25031](https://doi.org/10.1002/qua.25031).
- Y. P. Ortiz, A. F. Jalbout, "Graphene Metal Adsorption as a Model Chemistry for Atmospheric Reactions", *Chem. Phys. Lett.*, 564:73 - 77 (2013). DOI:[10.1016/j.cplett.2013.02.007](https://doi.org/10.1016/j.cplett.2013.02.007).
- A. F. Jalbout. Y. P. Ortiz, T. H. Seligman. "Spontaneous Symmetry Breaking and Strong Deformations in Metal Adsorbed Graphene Sheets", *Chem. Phys. Lett.*, 564:69-72 (2013). DOI:[10.1016/j.cplett.2013.01.051](https://doi.org/10.1016/j.cplett.2013.01.051).
- Y. P. Ortiz, T. H. Seligman, AIP Proceedings on "Symmetries in Nature, Symposium in Memoriam of Marcos Moshinsky, Mellville", New York, 1323:257-264 (2010). DOI:[10.1063/1.3537854](https://doi.org/10.1063/1.3537854).

### To be submitted

- Y.P. Ortiz, D.J. Klein and T.H. Seligman, "Lithium Adsorption on Polyacenes and Zig-zag-edge Graphene Strips"

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## COMPUTER SKILLS

- Extensive experience with large scales ab-initio Quantum Chemistry and Physics packages: Gaussian, CP2K, NWChem
- Transport Calculations: Artaios
- Programming: Python, Bash, Mathematica
- Operating system: MacOS, GNU/Linux: Ubuntu, Centos, Windows
- Word Processor :  $\LaTeX$ , Open office, Pages
- Data Analysis: Mathematica, Origin, Excel, Numbers  
Data Science: R Basics, HarvardX on edX, Credential ID: 6a3c1340009741c8baed3a0758c94c2c
- Others: Html

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## PROFESSIONAL SKILLS

### Teaching Experience

- Courses on events:  
2019 *Course on DFT*. Gathering: Present, Future and Applications of Ab-Initio Atomic and Molecular Electronic Structure Calculations. CIC A.C., Cuernavaca, México. November 10 - 30.  
  
2019 *Course On Artaios For Quantum Transport Calculations*. Symposium - School. DFT, Electronic Structure, Quantum Transport and Spectroscopy. CIC A.C., Cuernavaca, México. November 25 - 30.
- Assistant professor of thermodynamic. Universidad del Valle, Cali, Colombia, 2006
- Speaker of "Carpa de Melquiades" (Science Fair), Universidad del Valle, Cali, Colombia, 2007.

### Participation on Research Projects

- PAPIIT research project IG101113, "Quantum and classical open systems"
- CONACyT research project 79613, "'Transport statistics on simple quantum and classical systems"
- COLCIENCIAS Research project, *Quantum Noise Effects in Molecular and Solid State Architectures: A Quantum Information Processing Perspective* (director: John H. Reina, codirector: Julio C. Arce).

### Other areas

- Administrator of website of Centro Internacional de Ciencias A.C., Cuernavaca, Mexico.(2009 - 2011).
- Setting up and software installation in workstation "Thorin", Instituto de Ciencias Físicas, UNAM, 2013.

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## Organising Experience

- 2021 *Classical and Quantum Dynamics of Complex Systems and Applications*. Centro Internacional de Ciencias A.C., Cuernavaca, México. March 22 - April 1.
- 2020 *8th Symposium: Economics, Physics and Finance and School and Gathering on Multivariate analysis and some applications*. Centro Internacional de Ciencias A.C., Cuernavaca, México. December 3 - 18.
- 2019 *Symposium - School. DFT, Electronic Structure, Quantum Transport and Spectroscopy*. Centro Internacional de Ciencias A.C., Cuernavaca, México. November 25 - 30.
- 2019 *Symposium Present Status and Tangible Improvements of Ab-initio Electronic Structure Calculations*. Centro Internacional de Ciencias A.C., Cuernavaca, México. November 18 - 20.
- 2019 *Present, Future and Applications of Ab-Initio Atomic and Molecular Electronic Structure Calculations*. Centro Internacional de Ciencias A.C., Cuernavaca, México. November 10 - 30.
- 2019 *UdG-UV-UNAM-BUAP Gathering: Open systems, transport, Time series, Classical and Quantum Dynamics*. Centro Internacional de Ciencias A.C., Cuernavaca, México. February 11 - 22.
- 2017 *Mini-workshop on transport through small systems: classical and quantum*. Centro Internacional de Ciencias A.C., Cuernavaca, México. April 26-27.
- 2017 *Chaos, scattering, and semi-classics: A symposium in honor of Eric Heller on the occasion of his 70th Birthday*, Centro Internacional de Ciencias A.C., Cuernavaca, México. July 10-14.
- 2016 *Partial Orders, Mixing, Majorization and Applications*, Centro Internacional de Ciencias A.C., Cuernavaca, México. October 16 - 29.
- 2016 *2° Guadalajara-Cuernavaca meeting on quantum information, open quantum systems, decoherence, correlations and time series*, Centro Internacional de Ciencias A.C., Cuernavaca, México. January 10-23.
- 2014 *Conjugated Carbon Systems, Symposium in honor of Douglas Klein on the occasion of his 70th BIRTHDAY*, Centro Internacional de Ciencias A.C., Cuernavaca, México. Marzo 11-14.
- 2013 *Artificial Graphene*, Centro Internacional de Ciencias A.C., Cuernavaca, México. November 23 - December 7.
- 2013 *Mathematical Physics, Symposium in honor of Kurt Bernardo Wolf on the occasion of his 70th BIRTHDAY*, Centro Internacional de Ciencias A.C., Cuernavaca, México. November 18- 23.
- 2011 *Quantum billiards, random matrices and more, Symposium in honor of Jorge Flores Valdes on the occasion of his 70th BIRTHDAY*, Centro Internacional de Ciencias A.C., Cuernavaca, México. January 20 - 21.
- 2011 *Quantum Chaos in Closed and Open Systems*, Centro Internacional de Ciencias A.C., Cuernavaca, México. September 12 - 17.
- 2010 *Recent Developments in Integrable Systems and their Transition to Chaos, Symposium in Honor of Francesco Calogero on the Occasion of his 75th Birthday*, Centro Internacional de Ciencias A.C., Cuernavaca, México. November 29 - 30.
- 2010 *Symmetries in Nature, Symposium in Memoriam Marcos Moshinsky*, Centro Internacional de Ciencias A.C., Cuernavaca, México. August 9 - 14.
- 2009 *Penetrating Physics by Random Matrices*, Centro Internacional de Ciencias A.C., Cuernavaca, México. March 2-6.
- 2001 *Encuentro Nacional de Estudiantes de Física*, Universidad Pedagógica Nacional, Bogotá, Colombia. September 25-29.

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## RESEARCH STAYS AND ATTENDANCE AT MEETINGS

- 2020 *Transport at the Nanoscale*. Centro Internacional de Ciencias A.C., Cuernavaca, México. October 12 -16.
- 2019 *Research stay, Catalan Institute of Nanoscience and Nanotechnology with Dr. Stephan Roches's group*. Barcelona, Spain, November 10 - 14.
- 2019 *Research stay, Hamburg University with Dr. Carmen Herrmann*. Hamburg, Germany, October 21 - November 7.
- 2019 *Research stay, Technical University of Denmark (DTU) with Dr. Mads Brandbyge*. Kongens Lyngby, Denmark, October 4 - 19.
- 2017 *Research stay, Texas A&M university at Galveston with Prof. Douglas Klein* Texas, USA, October 1 - November 17.
- 2016 *Taller de Óptica Cuántica*, INAOE, Puebla, México. November 14-18.
- 2016 *Research stay, Ljubljana University with Dr. Marko Znidarik*, September 26 - October 14.
- 2016 *Research stay, Darmstadt University of Technology with Dr. Gernot Alber and Dr. Mauricio Torres*. Alemania, September 5 - 21.
- 2015 *Taller: Matrices aleatorias, sistemas dinámicos y grafeno*. Centro Internacional de Ciencias A.C., Cuernavaca, México. March 17 - April 7.
- 2015 *APS, Physics, March Meeting* San Antonio, Texas, US. March 2-6.
- 2013 *Molecular Dynamics: Simulations and ab initio calculations* Centro Internacional de Ciencias A.C., Cuernavaca, México. April 1-6.
- 2012 *Research stay, Institute for theoretical physics, ETH at Zurich with Prof. Matthias Troyer* Switzerland, July 10 - July 30.
- 2012 *Research stay, Texas A&M university at Galveston with Prof. Douglas Klein* Texas, USA, October 1 - November 30.
- 2011 *Research stay, ULM university with Prof. Ute Kaiser* Ulm, Germany, May 18 - July 9.
- 2011 *International School of solid state physics and workshop: Quantum phenomena in graphene, other low dimensional materials and optical lattices*, Majorana Center, Erice, Italy, July 26 - August 8.
- 2010 *Latin-American School of Physics: Atomic and Molecular Physics Nuclear and Particle Physics Time-dependent Systems and Transient Effects Mathematical Physics, XL ELAF*, UNAM, México D.F., México. Julio 26 -Agosto 6.
- 2010 *Developments in Quantum Chaos*, Centro Internacional de Ciencias A.C., Cuernavaca, México. Marzo 14 - Abril 10.
- 2009 *RMT - MEX09 : Recent Achievements and New Challenges in Random Matrix Theory*, Centro Internacional de Ciencias A.C., Cuernavaca, México. Feb 15 - March 14.
- 2007 *Decoherence: Measures, models and semi-classics*, Centro Internacional de Ciencias A.C., Cuernavaca, México. September 9-22.
- 2007 *Latin-American School of Physics: Quantum Information and Cold Quantum Matter, XXXVIII ELAF*, UNAM, México D.F., México. August 27-september 7.
- 2005 *II National Meeting of Quantum Computing and Quantum Information*, Universidad del Cauca, Popayan, Colombia. May 25-27.
- 2005 *XXI National Congress of Physics*, Universidad del Atlántico, Barranquilla, Colombia. October 24-28.

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## EXTRACURRICULAR ACTIVITIES

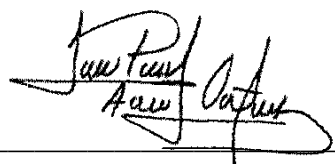
- Teacher of Colombian salsa dance

- Cycling, Cinema.

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## PERSONAL REFERENCES

- **Thomas H. Seligman**, Ph.D. (University of Tübingen), Researcher and Professor, Universidad Nacional Autónoma de México. Cuernavaca, México  
phone: (52) 777 3192733  
E-mail: [seligman@icf.unam.mx](mailto:seligman@icf.unam.mx)
- **Douglas J. Klein**, Ph.D. (University of Texas), Professor of chemistry and physics, Texas A&M University, Galveston, Texas, USA.  
phone: +1 (409) 740-4512  
E-mail: [kleind@tamug.edu](mailto:kleind@tamug.edu)



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Yenni Priscila Ortiz Acero  
Barcelona, España, 2022