

David Davalos

Personal address

Copal 177,
Col. Pedregal de Santo Domingo,
Coyoacán, Mexico City

Contact information

davidphysdavalos@gmail.com
ddavalos.com

Tel. (+52) 1 3311566255

Academic address

Instituto de Física
Universidad Nacional Autónoma de México,
IFUNAM, Marcos Moshinsky building, second floor, office 213f

Personal Information

- Date of Birth: September 21th of 1990.
 - Place of Birth: Guadalajara Jal., México.
 - Nationality : Mexican.
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Higher Education

- **Ph. D. Physics**
Institute of Physics, UNAM, 2015-2020.
 - **Physics Master**
Institute of Physics, UNAM 2013-2015.
 - **Bachelor of Physics**
Physics department CUCEI, University of Guadalajara, 2008-2013.
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Languages

- Spanish (mother language).
 - English.
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Programming Skills

- Advanced knowledge of Mathematica.
 - Advanced knowledge of Julia.
 - C++, Python, and MatLab.
 - Extensive use of GNU/Linux as user and administrator.
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Publications and projects in revision

- Measuring and using non-markovianity. Carlos Pineda, Thomas Gorin, David Davalos, Diego A. Wisniacki and Ignacio Garcia-Mata. Published: *Phys. Rev. A* 93, 022117 (2016).

- Quantum non-markovianity and localization. David Davalos and Carlos Pineda. Published: *Phys. Rev. A* 96, 062127 (2017).
 - Divisibility of qubit channels and dynamical maps. David Davalos, Mario Ziman and Carlos Pineda. Published: *Quantum* 3, 144 (2019).
 - Positivity and complete positivity of differentiable quantum processes. Gustavo Montes Cabrera, David Davalos and Thomas Gorin. Published: *Phys. Lett. A* 383, 23 (2019).
 - Gaussian quantum channels beyond the Gaussian functional form: full characterization of the one-mode case. David Davalos, Camilo Moreno, Juan-Diego Urbina and Carlos Pineda. *Sent to Physical Review A (PRA), arXiv:1902.07163.*
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Honors

- Graduated with Honors in the Master's degree program of "Master on Physical sciences" of UNAM.
 - *Juan Manuel Lozano Mejía Diploma* for distinguished academic performance in the "Master on Physical sciences" program of UNAM.
 - *Alfonso Caso medal* for being the most distinguished graduated in the year 2015 of the program of "Master on Physical sciences" of UNAM.
 - Graduated with Honors in the Ph. D. Physics program of UNAM.
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Teaching experience

At the Universidad Nacional Autónoma de México:

- Professor assistant of "Temas Selectos de física Matemática y Teórica I" ("Selected topics of mathematical and theoretical physics I"), First semester of 2014.
 - Professor assistant of "Temas Selectos de física Matemática y Teórica II" ("Selected topics of mathematical and theoretical physics II"), First semester 2015.
 - Professor assistant of "Temas Selectos de física Matemática y Teórica III" ("Selected topics of mathematical and theoretical physics III"), Second semester of 2015.
 - Professor assistant of "Temas Selectos de física Computacional II" ("Selected topics of mathematical and theoretical physics II"), Second semester of 2016.
 - Professor of "Física computacional" (Computational physics), second semester of 2017.
 - Professor assistant of "Temas Selectos de física Computacional III" ("Selected topics of mathematical and theoretical physics III"), First semester of 2019.
 - Professor assistant of "Introducción a la física cuántica" ("Introduction to quantum physics"), Second semester of 2019.
 - Currently being professor of "Mecánica cuántica" ("quantum mechanics"), First semester of 2020.
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Research visits

- Research visit/Talk at the *Physikalisches Institut, Albert-Ludwigs Universität Freiburg*, under the supervision of Prof. Dr. Andreas Buchleitner. Given the talk titled "Measuring and using non-markovianity". Freiburg, Germany, October 5th-30th of 2015.
- Research visit/Talk at the *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* under the supervision of Dr. Mario Ziman. Presented talk titled "Measuring and using non-markovianity". Bratislava, Slovakia, November 2th-20th of 2015 .

- Research visit at the *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* under the supervision of Dr. Mario Ziman. Bratislava, Slovakia, August 8th-26th of 2016.
- Research visit at the *Institute für Theoretische Physik* for collaboration with Dr. Juan Diego Urbina. Regensburg, Germany, September 5th-16th of 2016.
- Research visit at the *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* under the supervision of Dr. Mario Ziman. Bratislava, Slovakia, April 19th-21th and May 9th-19th of 2017.
- Research visit at the *Institute für Theoretische Physik* for collaboration with Dr. Juan Diego Urbina. Regensburg, Germany, April 24th to May 5th of 2017.
- Research visit at *Universität Wien* under the supervision of Dr. Carlos Pineda. Vienna, Austria, February 14th-24th of 2018 .
- Research visit *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* for collaboration with Dr. Mario Ziman. Bratislava, Slovakia, February 26th to March 2th and March 5th-9th of 2018.
- Research visit at the *Institute für Theoretische Physik* for collaboration with Dr. Juan Diego Urbina. Regensburg, Germany, March 5th-9th of 2018.
- Research visit/Talk at the *Moscow Institute of Physics and Technology (State University)* for collaboration with Dr. Sergey Filippov. Given the talk titled “Divisibility of quantum channels and entanglement breaking”. Dolgoprudny, Moscow Region, Russia, November 12th-23th of 2018.
- Research visit at the *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* for collaboration with Dr. Mario Ziman. Bratislava Slovakia, November 25th to December 15th of 2018.
- Research visit at the *Research Center for Quantum Information (RCQI), Slovak Academy of Sciences* for collaboration with Dr. Mario Ziman. Bratislava Slovakia, August 19th-30th of 2019.

Attendance to conferences, given talks and posters

- Congress: *XV Congreso de la investigación científica y tecnológica del pacífico* at Puerto Vallarta, Mexico, August 25-28/2010.
- Congress: *LIII Congreso Nacional de Física* at Boca del Rio, Veracruz, Mexico, October 25-29/2010.
- Summer School: *Applications of Quantum Mechanics: Optics, Chaos, Random Matrices and Quantum Information* at Cuernavaca, Morelos, Mexico, July 11-22/2011.
- Summer school: *Advanced Summer School 2011* at The Physics Department of CINVESTAV-IPN, Mexico city, Mexico, July 25th-29th of 2011.
- Summer School: *XX Escuela de Verano en Física* at UNAM, Mexico city and Cuernavaca, Mexico, July 18th-29th of 2012.
- Summer School: *Tercer Verano de las Matemáticas y Matemáticas Aplicadas* at CIMAT, Guanajuato, Gto. Mexico. July 2th-13th of 2012.
- Summer School: *Applications of Quantum Mechanics II* at Cuernavaca, Morelos, Mexico, July 16th-27th of 2012.
- Summer School: *Applications of Quantum Mechanics III* at Guadalajara Jalisco, Mexico, July 8th-19th of 2013.
- Summer School: *XLIII Latin American School of Physics: ELAF 2013* at Mexico City, Mexico, from July 22th to August 2th of 2013.
- Conference: *VII Reunión Anual de la División de Información Cuántica de la Sociedad Mexicana de Física*. At Cocoyoc, Morelos, Mexico, May 7th-9th of 2014. Presented the poster titled “Non-Markovianity and spin chains”.
- Summer School: *14th Canadian Quantum Information Summer School* at Guelph, Ontario, Canada, June 16-20/2014.

- Student Conference: *11th Canadian Quantum Information Student Conference*. At Guelph, Ontario, Canada, June 23th-27th of 2014. Presented the poster titled “Non-Markovianity and spin chains” .
- Summer School: *QUTE-Europe Summer School* at Smolenice, Slovakia, August 18th-28th of 2014. Given a poster presentation titled “Non-Markovianity and dynamical regimes” .
- Conference/Meeting of the *Division of Quantum Information of the Mexican Academy of Sciences (DICU)* at Ensenada, Mexico, September 23th-25th of 2015. Given a poster presentation titled “Quantum vaults and non-Markovianity”.
- Talk at the *Students seminar of the Instituto de Física UNAM*: “Bóvedas cuánticas y No Markovianidad” (quantum vaults and non-Markovianity), Mexico City, September 7th of 2015 .
- Conference/Talk: *ICF nonlinear physics group’s meeting* at Cuernavaca, Mexico, December 8th-9th of 2015. Presented the talk titled “This year and prospects to the next one: Non-Markovianity and random density matrices”.
- Conference/Talk: *Topics in Quantum Optics* at Cuernavaca, Mexico, February 14th-20th of 2016. Presented the talk titled “This year and prospects to the next: Non-Markovianity and random density matrices” .
- Conference/Meeting of the *Division of Quantum Information of the Mexican Academy of Sciences (DICU)* at Monterrey, NL, Mexico, October 26th-28th of 2016. Presented the poster titled “Quantum non-Markovianity and localization” .
- Conference/Talk: *Gathering: Correlations in Time Series and Many-Body Systems* at Cuernavaca, Mexico, June 18th to July 8th of 2017. Presented the talk titled “Divisibility of quantum channels versus divisibility of dynamical maps: Verifying Lindbladian divisibility”.
- Conference/Talk: *UDG-UNAM-BUAP meeting on quantum information, open systems, time series and correlations* at Cuernavaca, Mexico, January 9th-20th of 2017. Presented the talk titled “Open systems and non-markovianity”.
- Conference/Meeting of the *Division of Quantum Information of the Mexican Academy of Sciences (DICU)* at San Luis Potosí, SLP, Mexico, September 27th-29th of 2017. Presented the poster titled “Divisibility of quantum dynamical maps vs. divisibility of quantum channels”.
- Conference/Talk: *Latin American School of Physics: Quantum Correlations* at Mexico City, Mexico, July 24th to August 4th of 2017. Presented a poster titled “Divisibility of quantum dynamical maps vs. divisibility of quantum channels”.
- Conference/Talk: *Statistical techniques for correlation analysis: Quantum Many-Body Systems and more* at Cuernavaca, Mexico, July 8th to August 4th of 2018. Presented the talk titled “Divisibilidad de canales cuánticos, markovianidad y entrelazamiento”.
- Conference/poster: *Quantum Optics IX* at Cartagena, Colombia, October 21th-27th of 2018. Presented the poster titled “Characterization of singular Gaussian quantum channels”.
- Conference/Meeting *QMath2019* at Aarhus, Denmark, August 12th-16th 2019. Presented the poster titled “Divisibility of quantum channels”.
- Conference/Meeting of the *Division of Quantum Information of the Mexican Academy of Sciences (DICU)* at Puebla, Puebla, Mexico, September 4th-6th of 2019. Presented the talk titled “Divisibility of qubit channels and dynamical maps”.

References

- Carlos Francisco Pineda Zorrilla
 Instituto de Física, Universidad Nacional Autónoma de México (IFUNAM)
 Marcos Moshinsky Building, office 226
 carlospgmat03@gmail.com
 Phone : (+52) 1 55 4449 9712

- Thomas Henry Seligman Schurch
Centro Internacional de Ciencias, Mexico
seligman@icf.unam.mx
Phone : (+52) 55 5622 7876
- Thomas Gorin
Departamento de Física, Universidad de Guadalajara, Mexico
gorin0812@gmail.com
Phone : (+52) 33 1343 7474
- Diego A. Wisniacki
Physics Department, University of Buenos Aires, Buenos Aires, Argentina.
wisniacki@gmail.com
Phone : (+54) 11 4576 3390 (ext 819)