

Publicaciones 2024

Departamento: Física

Rolando Pérez Álvarez

- Diosdado Villegas, Zorayda Lazcano, Jesús Arriaga, R Pérez-Álvarez and Fernando de León-Pérez, "Goos-Hänchen shift for coupled vibrational modes in a semiconductor structure", J. Phys.: Condens. Matter 36 325301 (2024).
- M.A. Reyes and J.A. Otero and R. Pérez-Álvarez, "Interfacial waves in a piezoelectric/piezomagnetic/piezoelectric structure with magneto-electro-mechanical imperfect interfaces", Wave Motion, 130, 103384 (2024).
- Mohammed Miniya, Luis Manuel Gaggero-Sager, Miguel Eduardo Mora-Ramos, Rolando Pérez-Álvarez, and Outmane Oubram, "Self-similarity of quantum transport in graphene using electrostatic gate and substrate", Electronic Structure, vol. 6, No. 3, 035005 (2024).
- C. I. Cabrera and R. Pérez-Álvarez, "Special-point approach for optical absorption coefficient calculations on two-dimensional self-assemblies of type-II perovskite quantum dots", Journal of Physics: Condensed Matter, 37:2 025504 (2024).
- R. Pérez-Álvarez and M.E. Mora-Ramos, "Solved Problems of Classical Mechanics", Cambridge Scholars Publishing (2024). Libro.

Markus Franziskus Muller

- Alberto Isaac Aguilar-Hernández, José Fernando Zapata-Berruecos, David Michel Serrano-Solis, Gloria Vilaclara, Wady A. Ríos-Herrera, Gustavo Martínez-Mekler and Markus F. Müller, Fourier phase index for extracting signatures of determinism and nonlinear features in time serie, Chaos 34, 013103 (2024)
- Apablaza-Yevenes DE, Corsi-Cabrera M, Martinez-Guerrero A, Northoff G, Romaniello C, Farinelli M, Bertoletti E, Müller MF, Muñoz-Torres Z., Stationary stable cross-correlation pattern and task specific deviations in unresponsive wakefulness syndrome as well as clinically healthy subjects, PLoS ONE 19, e0300075, (2024)

- E.S. Ochoa-González, M. Corsi-Cabrera, T.H. Seligman, Z. Muñoz-Torres, M.F. Müller, Sub-Narrow Band Sleep Stage Analysis - Eigenvalues and Eigenvectors of the Multi-Band Cross-Correlation Matrix- *Physica A*, 130075, (2024), <https://doi.org/10.1016/j.physa.2024.130075>
- A.O. Marín-García, J.D. Arzate-Mena, M. Corsi-Cabrera, Z. Muñoz-Torres, P. V. Olguín-Rodríguez, W.A. Ríos-Herrera, A.L. Rivera, and M. F. Müller Stationary Correlation Pattern in highly non-stationary MEG recordings of healthy subjects and its relation to former EEG studies, Stationary correlation pattern in highly non-stationary MEG recordings of healthy subjects and its relation to former EEG studies. *PLoS ONE* 19(10): e0307378. (2024), <https://doi.org/10.1371/journal.pone.0307378>

Miguel Eduardo Mora Ramos

- “Black Phosphorene/MoS₂ Van der Waals heterostructure. Electronic and optical properties”. R. González-Reyes, J. D. Correa, F. M. Nava-Maldonado, K. A. Rodríguez-Magdaleno, M. E. Mora-Ramos, J. C. Martínez-Orozco, *Physica B* 673, 415489(1-7) (2024). <https://doi.org/10.1016/j.physb.2023.415489>
- “Simultaneous effects of the position-dependent mass and magnetic field on quantum well with the improved Tietz potential”. E. Kasapoglu, M. B. Yücel, M. E. Mora-Ramos, C. A. Duque, *Physica B* 679, 415797(1-10) (2024). <https://doi.org/10.1016/j.physb.2024.415797>
- “Thermodynamic effects on nonlinear optical properties in Harmonic-Gaussian asymmetric double quantum wells”. M. Sayrac, H. Dakhlaoui, M. E. Mora-Ramos, F. Ungan, *Physica Scripta* 99, 045942(1-9) (2024). <https://doi.org/10.1088/1402-4896/ad3150>
- “Electron-donor-impurity polarizability in a semiconductor nanostructure under electric field: Geometrical effects in ellipsoidal quantum dots”. A. Ed-Dahmouny, K. El-Bakkari, M. Jaouane, R. V. H. Hahn, R. Arraoui, A. Fakkahi, H. Azmi, N. Zeiri, M. G. Barseghyan, N. Es-Sbai, A. Sali, M. E. Mora-Ramos, C. A. Duque, *Physics Letters A* 509, 129502(1-9) (2024). <https://doi.org/10.1016/j.physleta.2024.129502>
- “Second harmonic generation in Harmonic-Gaussian asymmetric double quantum well: effect of magnetic and intense laser fields”. A. Türker Tuzemen, M. Demir, H. Dakhlaoui, M. E. Mora-Ramos, E. B. Al, F. Ungan,

[Physica Scripta 99, 055965\(1-9\) \(2024\). https://doi.org/10.1088/1402-4896/ad3d9b](https://doi.org/10.1088/1402-4896/ad3d9b)

- “Nonlinear optical properties of GaAs/AlGaAs asymmetric triple quantum well designed for quantum cascade laser: Effect of externally applied electric and magnetic field”. A. Türker Tuzemen, H. Dakhlaoui, M. E. Mora-Ramos, E. B. Al, F. Ungan, Physica B 690, 416223 (1-6) (2024). <https://doi.org/10.1016/j.physb.2024.416222>
- “Hopf-link GaAs-AlGaAs quantum ring under geometric and external field settings”. D. A. Ospina, D. A. Duque, M. E. Mora-Ramos, J. A. Vinasco-Suárez, A. Radu, R. L. Restrepo, A. L. Morales, J. Sierra-Ortega, G. E. Escorcia-Salas, C. A. Duque, Physica E 163, 116032(1-6) (2024). <https://doi.org/10.1016/j.physe.2024.116032>
- “Self-similarity of quantum transport in graphene using electrostatic gate and substrate”. M. Miniya, L. M. Gaggero-Sager, M. E. Mora-Ramos, R. Pérez-Álvarez, O. Oubram, Electronic Structure 6, 035005(1-11) (2024). <https://doi.org/10.1088/2516-1075/ad6c96>
- “Effects of hydrostatic pressure, temperature, and position-dependent mass on the nonlinear optical properties of triple delta-doped GaAs quantum well”. A. Turker Tuzemen, E. B. Al, H. Sayrac, H. Dakhlaoui, M. E. Mora-Ramos, Fatih Ungan, European Physical Journal Plus 139:690, 1-10 (2024). <https://doi.org/10.1140/epjp/s13360-024-05490-8>
- “Optoelectronic properties of a van der Waals heterostructure Black-Phosphorene/MoS₂ considering P-Atoms vacancy defects”. R. González-Reyes, J. D. Correa, M. E. Mora-Ramos, K. A. Rodríguez-Magdaleno, F. M. Nava-Maldonado, J. C. Martínez-Orozco, Physica B 673, 415489(1-7) (2024). <https://doi.org/10.1016/j.physb.2024.416455>
- “The influence of the electric field on the electronic structure of flat hexagonal two-dimensional GaN bilayers”. R. A. Reyna-Lara, J. D. Correa, K. A. Rodríguez-Magdaleno, F. M. Nava-Maldonado, M. E. Mora-Ramos, J. C. Martínez-Orozco, Materials Today Communications 41, 110356 (2024). <https://doi.org/10.1016/j.mtcomm.2024.110356>
- “Effects of doping concentrations and position-dependent mass on the nonlinear optical properties of asymmetric double delta-doped GaAs quantum well”. A. Salman Dusmuslar, E. B. Al, H. M. Althib, M. E. Mora-Ramos, Fatih Ungan, Applied Physics B 130:174, 1-8 (2024). <https://doi.org/10.1007/s00340-024-08315-9>

- "Optical absorption coefficient of a hydrogenic impurity in surface quantum well". S. Ramyapriya, M. Arumolzi, R. V. V. Hahn, C. A. Duque, M. E. Mora-Ramos, Physica B 695, 416571(1-6) (2024). <https://doi.org/10.1016/j.physb.2024.416571>
- "Numerical proceeding to calculate impurity states in 2D semiconductor heterostructures". V. Akimov, V. Tulupenko, R. Demediuk, A. Tiutiunyk, C. A. Duque, A. L. Morales, D. Laroze, M. E. Mora-Ramos, Scientific Reports 14, 30810(1-10) (2024). <https://doi.org/10.1038/s41598-024-81346-6>

Alejandro Ramírez-Solís

- *El Alanís-Manzano, CI León-Pimentel, L Maron, Alejandro Ramírez-Solís, H Saint-Martin. Exploring the Dynamic Coordination Sphere of Lanthanide Aqua +2 Ions: Insights from r2 SCAN-3c Composite-DFT Born–Oppenheimer Molecular Dynamics Studies. ACS Omega 2024, 9, 52, 50978–50991. <https://doi.org/10.1021/acsomega.4c04947>

Raúl Salgado García

- R. Salgado García, A. I. Rivera Islas, R. E. Gonzalez-Narvaez¹, F. Vázquez and M. López de Haro. Unraveling coupling delays through a transfer entropy analysis in stochastic processes and non-linear systems. Phys. Scr. 99 (2024) 125272. <https://doi.org/10.1088/1402-4896/ad921e>

Paola Vanessa Olguín Rodríguez

- Furuzawa-Carballeda, J., Barajas-Martínez, A., Olguín-Rodríguez, P.V. et al. Achalasia alters physiological networks depending on sex. Sci Rep **14**, 2072 (2024). <https://doi.org/10.1038/s41598-024-52273-3>
- Lecona OA, Arroyo-Valerio AG, Bueno-Hernández N, Carrillo-Ruiz JD, Ruelas L, Márquez-Franco R, et al. (2024) Risk factors contributing to infection with SARS-CoV-2 are modulated by sex. PLoS ONE 19(2): e0297901. <https://doi.org/10.1371/journal.pone.0297901>.
- Marín–García A, Arzate-Mena JD, Corsi-Cabrera M, Muñoz-Torres Z, Olguín–Rodríguez PV, Ríos–Herrera WA, et al. (2024) Stationary

correlation pattern in highly non-stationary MEG recordings of healthy subjects and its relation to former EEG studies. PLoS ONE 19(10): e0307378. <https://doi.org/10.1371/journal.pone.0307378>

Ruth Estephania Gonzalez Narvaez

- R. Salgado García, A. I. Rivera Islas, R. E. Gonzalez-Narvaez¹, F. Vázquez and M. López de Haro. Unraveling coupling delays through a transfer entropy analysis in stochastic processes and non-linear systems. Phys. Scr. 99 (2024) 125272. <https://doi.org/10.1088/1402-4896/ad921e>

Aldo Figueroa Lara

- Solano-Olivares, V., Cuevas, S., Figueroa, A., & Domínguez-Lozoya, D. R. (2024). Interaction of inertia and magnetic force in the liquid metal flow past a magnetic obstacle. *Physics of Fluids*, 36(8).
- Estudiantes licenciatura:
 - Carolina Michelle Gervacio Martínez, IICBA-UAEM, “Dinámica de plasma frío bajo efectos de campo magnético”. Fecha de titulación: 27 de Junio 2024.
 - Luis Enrique Martínez Mondragón, IICBA-UAEM, “Dinámica de flujo tipo VKS con forzante electromagnético”. Titulación por promedio. Fecha de titulación: 24 de Mayo 2024.
 - Mayra Vanessa Trejo Toledo, IICBA-UAEM, “Modelado de discos de acreción con fluidos conductores”. Fecha de titulación: 7 de Junio 2024.
 - Daniel Sánchez Santiago, IICBA-UAEM, “Interacción de flujos perpendiculares”. Fecha de titulación: Pendiente.
- Estudiantes doctorado:
 - Verónica Solano Olivares, IER-UNAM, “Numerical study of the liquid metal flow and heat transfer in ducts under localized magnetic fields”. Fecha de titulación: 30 de Enero 2024.
 - Leonardo Fidel Córdova Castillo, IER-UNAM, “Effect of cavity geometry on the distribution of charged particle in low-temperature plasmas: theoretical and experimental study”. Fecha de titulación: 07 de Octubre 2024.

Departamento: Matemáticas

Gabriela Guadalupe Hinojosa Palafox

- Díaz, J.P., Hinojosa, G. Cyclic coverings of the 3-sphere branched over wild knots of dynamically defined type. *Journal of Knot Theory and Its Ramifications* 2024, 33(04): 2450008. DOI: 10.1142/S0218216524500081
- Díaz, J.P., Hinojosa, G. Hyperbolic 3-Manifolds with Boundary Which are Side-Pairing of Two Tetrahedra as Exteriors of Knotted Graphs in the 3-Sphere. *Contemp. Math. (Wiser)* 2024 Apr. 26; 5(2): 2109-23. DOI:10.37256/cm.5220242910

Juan Pablo Díaz Gonzalez

- Juan Pablo Díaz, Gabriela Hinojosa; Hyperbolic 3-Manifolds with Boundary Which are Side-Pairings of Two Tetrahedra as Exteriors of Knotted Graphs in the 3-Sphere. *Contemporary Mathematics*. 2024, <https://doi.org/10.37256/cm.5220242910>
- Juan Pablo Díaz, Gabriela Hinojosa; Cyclic coverings of the 3-sphere branched over wild knots of dynamically defined type. *Journal of Knot Theory and its ramifications*. Vol. 33, No. 04, 2450008 (2024)

Yuriy Karlovych

- Yuri I. Karlovich, Index calculation for Wiener-Hopf operators with slowly oscillating coefficients, *Linear Algebra and its Applications*, Volume 697, 2024, Pages 93-130
- LIBRO: Karlovich, Y.I. (2024). Algebras of Convolution Type Operators with Piecewise Quasicontinuous and Piecewise Slowly Oscillating Data on Weighted Lebesgue Spaces. In: Rogosin, S. (eds) *Analysis without Borders. Operator Theory: Advances and Applications*, vol 297. Birkhäuser, Cham. https://doi.org/10.1007/978-3-031-59397-0_10
- Yu Karlovich. Essential spectrum of the double layer potential on curves with cusps 2024 *J. Phys.: Conf. Ser.* 2912 012022

- LIBRO: Algebras of Mellin pseudodifferential operators with quasicontinuous symbols. Y Karlovich - Authorea Preprints, 2024

Liudmila Lvovna Sabinina

- Aline J. de Oliveira Andrade, Bruno L. M. Ferreira, Liudmila Sabinina
JORDAN-TYPE MAPS ON ALTERNATIVE *-ALGEBRAS
Journal of Mathematical Sciences (2024) 280:278–287

Departamento: Inteligencia Artificial

Juan Manuel Rendón Mancha

- A Curriculum Learning Approach to Classify Nitrogen Concentration in Greenhouse Basil Plants Using a Very Small Dataset and Low-Cost RGB Images”, Jorge Fuentes-Pacheco, Edgar Roman-Rangel, Audberto Reyes-Rosas, Andrea Magadán-Salazar, Porfirio Juarez-López, Ronald Ernesto Ontiveros-Capurata, and Juan Manuel Rendón-Mancha. IEEE Access, Volume 12, 2024. DOI 10.1109/ACCESS.2024.3367614.

Nodari Vakhania Maisuradze

- Ernesto Parra Inza, Nodari Vakhania, José María Sigarreta Almira and Frank Ángel Hernández Mira. Algorithms for the global domination problem. October 2024, 106876. <https://doi.org/10.1016/j.cor.2024.106876> Online ISSN: 1873-765X Print ISSN: 0305 0548.
- Parra Inza, E.; Vakhania, N.; Sigarreta Almira, J.M.; Hernández-Aguilar, J.A. Approximating a Minimum Dominating Set by Purification. Algorithms 2024, 17, 258. <https://doi.org/10.3390/a17060258> ISSN 1999-4893 Ernesto Parra Inza, Nodari Vakhania, José María Sigarreta Almira, Frank Angel Hernández Mira. Exact and heuristic algorithms for the domination problem. European Journal of Operational Research 313 (2024) 926–936 2023\\ <https://doi.org/10.1016/j.ejor.2023.08.033> Print ISSN: 0377-2217 Online ISSN: 1872-6860

Lorena Díaz González

- Zárate, A., Díaz-González, L., & Taboada, B. (2024). VirDetect-AI: a residual and convolutional neural network–based metagenomic tool for eukaryotic viral protein identification. *Briefings in Bioinformatics*, 26(1).

Bruno Lara Guzman

- Pardo, M., Ciria, A., & Lara, B. (2024). Emergence of altruistic behavior in heterogeneous populations of artificial agents by evolution of kin discrimination mechanism. *Adaptive Behavior*, 32(1), 47-61.

Daniel Arzate Mena

- Marín–García A, Arzate-Mena JD, Corsi-Cabrera M, Muñoz-Torres Z, Olguín–Rodríguez PV, Ríos–Herrera WA, et al. (2024) Stationary correlation pattern in highly non-stationary MEG recordings of healthy subjects and its relation to former EEG studies. *PLoS ONE* 19(10): e0307378. <https://doi.org/10.1371/journal.pone.0307378>
- M. Guadalupe Camacho-Herrera¹, V. Svetlhana Gutiérrez-López^{2,3}, J. Daniel Arzate-Mena. *Dinámica cerebral durante el sueño*. Vórtice. 2024.