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Empleo

2003 – ····  **Investigador de Tiempo Completo (Titular C)**
Departamento de Investigación en Física
Universidad de Sonora.

Educación

- 1999 – 2002  **Doctor en Física de la Materia Condensada**
Universidad de Montpellier II, Francia
Mención "Trés honorable"
Tesis: *Modelización de cristales fotónicos a base de ópalo*
Director de Tesis: Dr. Jean Paul Albert
Fecha de obtención del grado: 12 de septiembre del 2002.
- 1998 – 1996  **Maestría en Ciencias (Física)**
Universidad de Sonora, Mexico.
Tesis: *Propiedades Ópticas de recubrimientos con nanopartículas de Cu – Cu₂O – CuO inmersas en una matriz de SiO₂ preparado por sol-gel.*
Director de Tesis: Dr. Rafael Ramirez Bonn
Fecha de obtención del grado: 9 de julio 1998.
- 1992– 1997  **Licenciatura en Física**
Universidad de Sonora, Mexico.
Tesis: *Ondas electromagnéticas de superficie guiadas por multicapas dieléctricas y metálicas*
Director de Tesis: Dr. Felipe Ramos Mendieta
Fecha de obtención del grado: 14 de marzo de 1997

Distinciones

- 2022 – 2026  **Miembro del Sistema Nacional de Investigadores e Investigadoras (SNII), Nivel 2**
- 2024 – 2026  **Reconocimiento como Profesor con Perfil Deseable (PRODEP)**

Publicaciones

Artículos de investigación

- 1 C. Romero-Ramos, J. Manzanares-Martinez, D. Soto-Puebla, and B. M. Martínez, "Complex band structure of two-dimensional thermal wave crystals," *Revista Mexicana de Física*, vol. 70, no. 6 Nov-Dec, pp. 061 603–1, 2024.
- 2 C. A. Romero-Ramos, B. Manzanares-Martinez, D. Soto-Puebla, and J. Manzanares-Martinez, "Complex band structure of thermal wave crystals: The plane-wave method," *Revista Mexicana de Física*, vol. 70, no. 3 May-Jun, pp. 031 601–1, 2024.
- 3 J. P. Lauterio-Cruz, J. Manzanares-Martinez, and J. Gaspar-Armenta, "Higher order mode conversion induced by discontinuities in waveguides," *Revista mexicana de física*, vol. 69, no. 5, pp. 0–0, 2023.

- 4 G. Morales-Morales and J. Manzanares-Martinez, "Enlargement of band gaps on thermal wave crystals by using heterostructures," *Results in Physics*, vol. 42, p. 106 019, 2022.
- 5 C. A. Romero-Ramos, J. Manzanares-Martínez, B. Manzanares-Martínez, D. Soto-Puebla, G. A. Morales-Morales, and C. E. Ruiz-Rosales, "Brewster angle of thermal diffusivity waves at an interface," *Results in Physics*, vol. 30, p. 104 856, 2021.
- 6 M. Ahumada-Centeno, P. Amore, F. M. Fernández, and J. Manzanares-Martinez, "Quantum particles in a moving potential," *Physica Scripta*, vol. 95, no. 6, p. 065 405, 2020.
- 7 J. Manzanares-Martinez, C. I. Ham-Rodriguez, M. E. Zayas, and B. Manzanares-Martinez, "Detection of high-order lamb waves using an end-face injection of ultrasonic pulses," *Results in Physics*, vol. 12, pp. 12–14, 2019.
- 8 J. Manzanares-Martinez, C. A. Romero-Ramos, and J. A. Gaspar-Armenta, "Dirac cone switching in two-dimensional photonic crystals by rotation of the crystal basis," *Results in Physics*, vol. 15, p. 102 748, 2019.
- 9 J. Manzanares-Martinez, C. Ham-Rodriguez, and B. Manzanares-Martinez, "Recovery of transit times and frequencies of multiple pulses via the short-time fourier transform," *Revista mexicana de física*, vol. 64, no. 3, pp. 296–301, 2018.
- 10 C. Ham-Rodriguez, J. Manzanares-Martinez, D. Moctezuma-Enriquez, and B. Manzanares-Martinez, "Detection of elastic modes in a solid-liquid-solid planar waveguide," *Applied Physics Letters*, vol. 109, no. 6, 2016.
- 11 Y. Rodriguez-Viveros, D. Moctezuma-Enriquez, P. Castro-Garay, *et al.*, "Mode conversion caused by bending in photonic subwavelength waveguides," *Applied Computational Electromagnetics Society Journal (ACES)*, pp. 1269–1275, 2015.
- 12 J. Manzanares-Martinez, C. I. Ham-Rodriguez, D. Moctezuma-Enriquez, and B. Manzanares-Martinez, "Omnidirectional mirror based on bragg stacks with a periodic gain-loss modulation," *AIP Advances*, vol. 4, no. 1, 2014.
- 13 D. Moctezuma-Enriquez, P. Castro-Garay, Y. Rodriguez-Viveros, and J. Manzanares-Martinez, "Modification of the radiation of a luminescent dye embedded in a finite one-dimensional photonic crystal," *Advanced Studies in Theoretical Physics*, vol. 7, no. 13-16, pp. 707–716, 2013.
- 14 D. Moctezuma-Enriquez, P. Castro-Garay, Y. Rodriguez-Viveros, J. Manzanares-Martinez, and B. Manzanares-Martinez, "Phoxonic band gaps in porous silicon multilayers at frequencies of the visible and hypersound," *Advanced Studies in Theoretical Physics*, vol. 19, pp. 907–914, 2013.
- 15 D. Moctezuma-Enriquez, G. Morales-Morales, Y. Rodriguez-Viveros, B. Manzanares-Martinez, C. Ham-Rodriguez, and J. Manzanares-Martinez, "Experimental evidence of the non-transmission range enlargement in phononic heterostructures," *Advanced Studies in Theoretical Physics*, vol. 24, pp. 1195–1204, 2013.
- 16 B. Manzanares-Martinez, L. Castro-Arce, J. Avila-Diaz, P. Castro-Garay, E. Urrutia-Banuelos, and J. Manzanares-Martinez, "Longitudinal and transverse elastic waves in one-dimensional phononic crystals," *Advanced Studies in Theoretical Physics*, vol. 6, no. 1-4, pp. 19–25, 2012.
- 17 J. Manzanares-Martinez, P. Castro-Garay, R. Archuleta-Garcia, and D. Moctezuma-Enriquez, "Large frequency range of photonic band gaps on porous silicon heterostructures for infrared applications," *Advanced Studies in Theoretical Physics*, vol. 5, no. 5-8, pp. 327–335, 2011.
- 18 J. Manzanares-Martinez, P. Castro-Garay, E. Urrutia-Banuelos, and D. Moctezuma-Enriquez, "Analytical determination of the stop band tuning of photonic crystals infiltrated with liquid crystals," *Advanced Studies in Theoretical Physics*, vol. 5, no. 9-12, pp. 551–557, 2011.

- 19 J. Manzanares-Martinez, R. Archuleta-Garcia, P. Castro-Garay, D. Moctezuma-Enriquez, and E. Urrutia-Banuelos, "One-dimensional photonic heterostructure with broadband omnidirectional reflection," *Progress In Electromagnetics Research*, vol. 111, pp. 105–117, 2011.
- 20 D. Moctezuma-Enriquez, Y. Rodriguez-Viveros, M. Manzanares-Martinez, P. Castro-Garay, E. Urrutia-Banuelos, and J. Manzanares-Martinez, "Existence of a giant hypersonic elastic mirror in porous silicon superlattices," *Applied Physics Letters*, vol. 99, no. 17, 2011.
- 21 R. Archuleta-Garcia, D. Moctezuma-Enriquez, and J. Manzanares-Martinez, "Enlargement of photonic band gap in porous silicon dielectric mirrors," *Journal of Electromagnetic Waves and Applications*, vol. 24, no. 2-3, pp. 351–361, 2010.
- 22 J. Manzanares Martínez, P. Castro Garay, R. Archuleta García, and D. Moctezuma Esquer, "Heteroestructuras de cristales fotónicos," *Epistemus (Sonora)*, no. 9, pp. 5–10, 2010.
- 23 J. Manzanares-Martinez and P. Castro-Garay, "Modeling the tuning of lasing in liquid crystal based one-dimensional photonic crystals using the finite difference time-domain method," *Journal of Electromagnetic Waves and Applications*, vol. 24, no. 14-15, pp. 1867–1875, 2010.
- 24 J. Manzanares-Martinez, P. Castro-Garay, D. Moctezuma-Enriquez, R. Archuleta-Garcia, and M. Velarde-Chong, "Complex band structure in one-dimensional photonic heterostructures," *Adv. Studies Theor. Phys*, vol. 4, pp. 759–772, 2010.
- 25 J. Manzanares-Martinez, "Analytic expression for the effective plasma frequency in one-dimensional metallic-dielectric photonic crystal," *Progress In Electromagnetics Research M*, vol. 13, pp. 189–202, 2010.
- 26 J. Manzanares-Martínez, D. Moctezuma-Enriquez, and R. Archuleta-García, "Determination of electromagnetic cavity modes using the finite difference frequency-domain method," *Latin-American Journal of Physics Education*, vol. 4, no. 2, p. 9, 2010.
- 27 J. Manzanares-Martinez, P. Castro-Garay, and E. Urrutia-Banuelos, "Influence of disorder on a chirped mirror based on porous silicon," *Progress In Electromagnetics Research Letters*, vol. 11, pp. 159–165, 2009.
- 28 P. Castro-Garay, J. Reyes, and R. Ramos-García, "Transmittance and reflectance of an imprinted cholesteric elastomer during a segregation process," *Molecular Crystals and Liquid Crystals*, vol. 495, no. 1, pp. 234–586, 2008.
- 29 J. Manzanares-Martinez and F. Ramos-Mendieta, "One-dimensional photonic crystals with semiconducting constituents: The effects of the absorption mechanisms," *Revista mexicana de física*, vol. 54, pp. 87–94, 2008.
- 30 R. Archuleta-García, B. Manzanares-Martínez, and J. Manzanares-Martínez, "Bandas prohibidas gigantes en heteroestructuras fotónicas," *Revista mexicana de física*, vol. 53, no. 5, pp. 371–375, 2007.
- 31 R. Archuleta-Garcia, M. Manzanares-Martinez, and J. Manzanares-Martinez, "Una descripción del método de ondas planas para el cálculo de bandas fotónicas," *Revista Boliviana de Física*, vol. 13, pp. 79–85, 2007.
- 32 J. Manzanares-Martinez and J. Gaspar-Armenta, "Direct integration of the constitutive relations for modeling dispersive metamaterials using the finite difference time-domain technique," *Journal of Electromagnetic Waves and Applications*, vol. 21, no. 15, pp. 2297–2310, 2007.
- 33 M. Lopez-Esquer, J. Gaspar-Armenta, and J. Manzanares-Martinez, "Aplicación del método de diferencias finitas en el dominio del tiempo a la simulación del campo electromagnético usando matlab," *Rev. mex. fís. E*, pp. 58–64, 2006.
- 34 J. Manzanares-Martinez, F. Ramos-Mendieta, and P. Halevi, "Tuning of transmission peaks in two-dimensional semiconductor-based photonic crystals with line defects of cylinders," *Applied Physics Letters*, vol. 87, no. 10, 2005.

- 35 J. Manzanares-Martinez, F. Ramos-Mendieta, and P. Halevi, "Temperature tuning of two-dimensional photonic crystals in the presence of phonons and a plasma of electrons and holes," *Physical Review B—Condensed Matter and Materials Physics*, vol. 72, no. 3, p. 035 336, 2005.
- 36 S. Romanov, M. Kaliteevski, C. Sotomayor Torres, *et al.*, "Stimulated emission due to light localization in the bandgap of disordered opals," *physica status solidi (c)*, vol. 1, no. 6, pp. 1522–1530, 2004.
- 37 M. Kaliteevski, J. M. Martinez, D. Cassagne, J. Albert, S. Brand, and R. Abram, "Appearance of photonic minibands in disordered photonic crystals," *Journal of Physics: Condensed Matter*, vol. 15, no. 6, p. 785, 2003.
- 38 M. Kaliteevski, J. M. Martinez, D. Cassagne, and J. Albert, "Disorder-induced modification of the transmission of light in a two-dimensional photonic crystal," *Physical Review B*, vol. 66, no. 11, p. 113 101, 2002.
- 39 S. Romanov, T. Maka, V. Solovyev, *et al.*, "Photonic crystals based on two-layer opaline heterostructures," *MRS Online Proceedings Library*, vol. 722, pp. 771–776, 2002.
- 40 S. Romanov, T. Maka, C. S. Torres, *et al.*, "Diffraction of light from thin-film polymethylmethacrylate opaline photonic crystals," *Physical Review E*, vol. 63, no. 5, p. 056 603, 2001.
- 41 J. Manzanares-Martinez, L. Garcia-Cerda, R. Ramirez-Bon, F. Espinoza-Beltran, J. Perez-Robles, and J. Gonzalez-Hernandez, "Stabilization of copper-based colloidal particles in sol–gel sio2 thin films," *Thin Solid Films*, vol. 365, no. 1, pp. 30–35, 2000.
- 42 R. Bernal, J. Manzanares, F. Espinoza-Beltran, R. Ramirez-Bon, Y. Vorobiev, and J. González-Hernández, "Structural evolution of colloidal particles in porous sio2 coatings," *Japanese journal of applied physics*, vol. 38, no. 2R, p. 857, 1999.
- 43 R. Bernal, J. Manzanares-Martínez, F. Espinoza-Beltrán, *et al.*, "Espectroscopia fotoacústica de polvos y películas de cu-sio preparado por sol-gel, oxidado y posteriormente reducido en atmósfera de co," *Superficies y vacío*, vol. 7, pp. 65–69, 1997.

Conference Proceedings

- 1 J. Manzanares-Martinez, "Detection of mode conversion in a subwavelength thin film heterostructure," in *Nanostructured Thin Films IX*, SPIE, vol. 9929, 2016, pp. 141–147.
- 2 P. Castro-Garay, J. Manzanares-Martinez, A. Corella-Madueño, *et al.*, "Bragg diffraction for normal and obliquely circularly polarized light due a new chiral mixture," in *Liquid Crystals XIX*, SPIE, vol. 9565, 2015, pp. 161–166.
- 3 J. Manzanares-Martinez, P. Castro-Garay, B. Manzanares-Martinez, D. Moctezuma-Enriquez, Y. Rodriguez-Viveros, and C. Ham-Rodriguez, "Phoxonic structure with photonic and phononic stop bands at the same reduced frequency," in *Nanostructured Thin Films VIII*, SPIE, vol. 9558, 2015, pp. 116–121.
- 4 J. Manzanares-Martinez, F. Ramos-Mendieta, and P. Halevi, "Free-electron tuning of optical properties of defect modes in semiconducting superlattices," in *Tuning the Optical Response of Photonic Bandgap Structures*, SPIE, vol. 5511, 2004, pp. 191–198.
- 5 M. Kaliteevski, J. M. Martinez, D. Cassagne, J. Albert, and D. Felbacq, "Disorder in 2d photonic crystals: Modification of transmission and photonic minibands," in *2003 Digest of LEOS Summer Topical Meeting (Cat. No. 03TH8701)*, IEEE, 2003, WA2–4.
- 6 F. Espinoza-Beltrán, R. Bernal, J. Manzanares-Martínez, *et al.*, "Optical properties of coatings with cu and copper oxide colloidal particles in a sio2 matrix," in *Materials science forum*, Trans Tech Publications, vol. 287, 1998, pp. 489–492.

Habilidades

Idiomas	■	Español, inglés y francés
Programación	■	Python, C++, Fortran, L ^A T _E X.
Deportes	■	Ajedrez (Rating FIDE) https://ratings.fide.com/profile/29650364 judo (cinturon naranja), natación en aguas abiertas.

Dirección de tesis

Doctorado

- 2016 ■ **Carlos Ivan Ham Rodriguez**, “Conversion de modos elasticos en guias de ondas”, Departamento de Investigacion en Fisica, Universidad de Sonora.
- 2015 ■ **Yohan Jasdíd Rodriguez Viveros**, “Simulacion del Campo electromagnetico en nanoestructuras usando el Metodo de Diferencias Finitas”, Departamento de Fisica, Universidad de Sonora. Presentada el 14 de diciembre del 2015 recibiendo mencion honorifica. Departamento de Investigacion en Fisica, Universidad de Sonora.
- **Damian Moctezuma Enriquez**, “Estudio de propiedades opticas y acusticas de cristales fononicos”, Centro de Investigacion en Materiales Avanzados (CIMA), presentada el 7 de agosto de 2015.
- 2011 ■ **Raul Archuleta Garcia**, “Estudio de propiedades opticas de heteroestructuras fotonicas”, Departamento de Investigacion en Fisica, Universidad de Sonora. Presentada el 11 de noviembre del 2011 recibiendo Mencion Honorifica.

Maestría

- 2010 ■ **Damian Moctezuma Enriquez**, “Optimizacion de heteroestructuras fotonicas de bajo indice de refraccion”, Departamento de Investigacion en Fisica, Universidad de Sonora. Presentada el 17 de marzo del 2010.
- 2007 ■ **Raul Archuleta Garcia**, “Heteroestructuras de cristal fotonico en una dimension”, Departamento de Investigacion en Fisica, Universidad de Sonora. Presentada el 26 de enero del 2007.
- 2005 ■ **Marco Antonio Lopez Esquer**, “Aplicacion del Metodo de diferencias finitas en el dominio de tiempo a la simulacion del campo electromagnetico. Departamento de Investigacion en Fisica, Universidad de Sonora. Presentada el 30 de junio del 2005.

Licenciatura

- 2006 ■ **Adrian Navarro Badilla**, “Simulacion de la velocidad de fase y velocidad de grupo en medios dispersivos con el metodo de diferencias finitas en el dominio del tiempo”, Departamento de Fisica, Universidad de Sonora. Presentada el 7 de febrero del 2006.