

Iván Moreno Hernández

CURRICULUM EN RESUMEN

Unidad Académica de Ciencia y Tecnología de la Luz y la Materia (LUMAT), Universidad Autónoma de Zacatecas (UAZ).

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Estudios

- *Doctor en Ciencias* (Óptica), Doctorado Directo. Centro de Investigaciones en Óptica, Univ. de Guanajuato, 1999-2003.
- *Ingeniero Físico*, Tecnológico de Monterrey, Campus Monterrey, 1995-1998.

Empleos, proyectos y cursos

1. *Profesor-Investigador Titular C*. Tiempo completo. LUMAT, UAZ (2019—).
2. *Profesor-Investigador Titular C*. Tiempo completo. Unidad Académica de Física, UAZ (2003—2019).
3. *Estancia Sabática*. Centro de Investigaciones en Óptica (CIO). Laboratorio del Dr. Elder de la Rosa y Dr. Hagge Desirena (Enero 2016—Enero 2017).
4. *Investigador Invitado*. Department of Optics and Photonics, National Central University, Taiwan (Enero-Julio 2007, Noviembre 2010, Abril 2011, Dic. 2012, Nov. 2015). Laboratorio de Óptica de Iluminación de Estado Sólido, Prof. C.C. Sun (Fellow de SPIE y OSA).
5. *Responsable del Cuerpo Académico Consolidado: Tecnologías y Estudio de la Luz* (CATEL), en (2013-2016), (2019—).
6. Titular de proyecto de investigación financiado por CONACYT Ciencia de Frontera: *Meta-óptica para iluminación y concentración de radiación*. (2021— 2023).
7. Titular de proyecto de investigación financiado por CONACYT Ciencia Básica: *Iluminación con LEDs Superbrillantes: Teoría, Optimización y Caracterización*. (2011— 2014).
8. Titular de proyecto de investigación financiado por CONACYT Ciencia Básica: *Diseño óptico de sistemas de iluminación de estado sólido*. (2005— 2007).
9. Titular del proyecto de investigación financiado por PROMEP: *Iluminación de estado sólido: combinaciones de LEDs rojo-verde-azul para generación de luz blanca altamente brillante*. (2003—2004).
10. Cursos impartidos en maestría:
(A1) Meta-óptica; (A2) Meta-lentes; (A3) Teoría del Color; (A4) Radiometría. LUMAT, UAZ (2019—).
(B1) *Electrodinámica Clásica*; (B2) *Óptica de Concentración Solar e Iluminación*; (B3) *Laboratorio V: Avanzado*; (B4) *Ingeniería Óptica*; (B5) *Radiometría*; (B6) *Laboratorio III: Ondas*; (B7) *Laboratorio IV: Física Moderna*; (B8) *Laboratorio I: Mecánica*; (B9) *Física de Fuentes de Luz*. Unidad Académica de Física, UAZ (Julio 2003-2019).
11. Cursos impartidos en licenciatura:
(A1) Teoría Electromagnética; (A2) *Laboratorio de Física Moderna*; (A3) *Teoría del Color*; (A4) *Ondas*; (A5) *Óptica*; (A6) *Métodos Matemáticos I*; (A7) *Física de Semiconductores: Iluminación de Estado Sólido*; (A8) *Ingeniería Óptica*; (A9) *Aritmética*; (A10) *Laboratorio de Óptica*; (A11) *Laboratorio I: Mecánica*; (A12) *Trigonometría*; (A13) *Calculo 1*. Unidad Académica de Física, UAZ (Julio 2003-2019).
(B) *Dinámica de Sistemas Físicos*. Universidad LaSalle Bajío, Coordinación de Electrónica (Febrero-Junio 2003).
(C1) *Electricidad y Magnetismo*; (C2) *Cálculo Vectorial*. Universidad Autónoma de Aguascalientes, Dep. de Mat. y Física (Ene-Ago 1999);
(D) *Laboratorio de Física I, II y III*. Tecnológico de Monterrey, Campus Mty, Departamento de Física. (Enero 1997-Diciembre 1998).

Distinciones

1. Premio “*ICO-ICTP Galleino Denardo Award*” 2011. Otorgado por la International Commission for Optics (ICO) y por el International Center for Theoretical Physics (ICTP), en Trieste Italia (2011).
2. Miembro de la *Academia Mexicana de Ciencias* (2012).
3. *OSA Senior Member*, Reconocimiento por logros profesionales significativos en Óptica, *Optical Society of America* (2013).
4. *SPIE Senior Member*, Distinción para miembros jóvenes destacados de la *International Society for Optics and Photonics* (2011).
5. *Investigador Nacional* nivel III (SNI 3), nombramiento del Sistema Nacional de Investigadores (2016-2020, 2021-2025).
6. *Investigador Nacional* nivel II (SNI 2), del Sistema Nacional de Investigadores (2012-2015).
7. *Investigador Nacional* nivel I (SNI I), del Sistema Nacional de Investigadores (2005-2007, 2008- 2011).
8. *OSA Traveling Lecturer* (2016—)
9. Reconocimiento por Aportaciones a la Óptica, otorgado por el Alcalde de Zacatecas (2011).
10. Asesor de los estudiantes: Rodolfo García Camacho, Ganador del *Concurso de Investigación Científica “José Árbol y Bonilla”* 2011; José Carlos Basilio, Mención Honorífica del *Concurso de Investigación Científica “José Árbol y Bonilla”* 2012.
11. Reconocimiento de profesor con *perfil deseable PROMEP* (2006-2018).
12. Biografía incluida en el libro *Who's Who in the World*.

Impacto Científico

1. Número de citas = 2880 (con 2670 citas externas un índice $H=26$).
2. Noticia internacional sobre relevancia del Artículo 15 de la Lista Completa en: *OSA Newsroom*, The Wall Street Journal, *BBC News*, *Discovery News*, *Muy Interesante*, y en *I fucking love science* de Facebook (2013).
3. 14 artículos varias veces incluidos en las listas de *los más descargados* a nivel Internacional en:
 - (a) “Top Downloaded Articles in IEEE Photonics Journal”. Artículo 10 de la Lista Completa, en Febrero, Marzo y Junio de 2017; Febrero-Octubre de 2018.
 - (b) “Top Downloaded Articles in Optical Devices from Applied Optics and Advances in Optics and Photonics over the past year” from the Optical Society of America journals. Artículo 14 de la Lista Completa (2015).

- (c) "Top Downloads" of the *Optical Society of America* (OSA). List of the most frequently downloaded OSA publications. Artículo 33 de la Lista Completa salió en Julio 2008, Julio y Agosto 2009; en Octubre 2010 el Artículo 25; Abril, Mayo, Junio y Julio 2013 el Artículo 15.
- (d) "Top Downloads" of the *Optical Society of America* (OSA). List of the most frequently downloaded OSA publications. El artículo 15 de la Lista Completa salió en "Open Access - Last 7 Days" de la página principal de OSA y en "Today's Top Downloads" de Optics Express (24 Abril-18 Mayo 2013).
- (e) "2012 Collection of the Most downloaded papers in Optical Devices over the past two years" from the *Optical Society of America* journals. Artículo 22 de la Lista Completa.
- (f) "Top Downloads" in Vision and Color Division of the *Optical Society of America*. List of the most frequently downloaded publications. Artículo 20 de la Lista Completa (1-6 de Diciembre de 2010). Artículo 16 (Dic. 2011 a Enero 2012). Artículo 36 (14 de Enero de 2011).
- (g) *International Society for Optics and Photonics* (SPIE), "Top 100 Downloads" on CD-ROM: Solid State Lighting and Applications (Special Collection). Vol. CDP43, ISBN: 9780819472090. Includes the 100 top downloaded journal and proceedings papers on Solid-State Lighting and Applications (2008). Artículos 38 y 72 de la Lista Completa.
- (h) "Most read in the last 30 days" en la revista científica "Measurement Science and Technology" del *Institute of Physics* (IoP). De Junio a Octubre de 2009. Artículo 30 de la Lista Completa.
- (i) Top 10 Downloads by Technology of *International Society for Optics and Photonics*. List of the most frequently downloaded papers and articles (Junio 2009). Artículo 65 de la Lista Completa.
- (j) Top Notch Research, List of the most frequently downloaded SPIE articles. <http://spie.org/x14428.xml> (Junio 2007). Artículo 38.
- (k) Top Downloaded Papers, List of the most frequently downloaded from Solid State and Organic Lighting (SOLED) conference. (2013-2014). Artículo 59.
4. Presentación Oral "Simultaneous color-mixing and collimation within LED package" seleccionada en la lista de 33 "Recommended Papers" de entre 3200 trabajos, del congreso *SPIE Optics and Photonics 2013*. En San Diego, California USA. http://spie.org/Documents/AboutSPIE/PDF/OP13-hot-papers_14Jun2013.pdf
5. Presentación Oral "LED street lighting: modeling and design" seleccionada en la lista de 30 "Recommended Papers" de entre 1500, del congreso *SPIE Photonics Europe 2012*. En Bruselas Bélgica. http://spie.org/Documents/AboutSPIE/PDF/EPE12_recommended-papers.pdf
6. Presentación Oral "Optics for efficient focusing of LED light" seleccionada en la lista de 66 "Recommended Papers" de entre 2800, del congreso *SPIE Optics and Photonics 2012*. En San Diego, California USA. <http://spie.org/Documents/AboutSPIE/OP12-hot-papers.pdf>

Comités (Editoriales y de Congresos) y Arbitrajes

1. Editor de la revista científica "*Journal of Solid State Lighting*", Editorial Springer (Junio 2013- Septiembre 2016)
2. Editor de la revista científica "*Journal of Photonics*", Editorial Hindawi (Junio 2013-Agosto 2016)
3. Editor Invitado para un número especial de la revista científica "*International Journal of Optics*", Editorial Hindawi (2017).
4. Editor de la revista de divulgación científica "eek" del estado de Zacatecas (Enero 2012-).
5. Arbitro de 116 artículos científicos (nombrado 243 veces) de las revistas internacionales: (1) Optics Letters; (2) New Journal of Physics; (3) Optics Express; (4) JOSA A; (5) JOSA B; (6) Applied Optics; (7) J. Opt. A: Pure Appl. Opt.; (8) Journal of Applied Physics; (9) Optics Communications; (10) J. Phys. D: Appl. Phys.; (11) Meas. Sci. Technol.; (12) Sem. Sci. Technol.; (13) IEEE Photon. Technol. Lett.; (14) IEEE Trans. on Signal Process; (15) IEEE Sensors Journal; (16) Optical Engineering; (17) Journal of Display Technology; (18) Energy and Buildings; (19) Microelectronics Reliability; (20) Biomedical Optics; (21) Energy Efficiency; (22) Computer Vision; (23) Opt. & Laser Tech.; (24) J. of Solid State Lighting; (25) Transportation Research; (26) Sensors; (27) LEUKOS; (28) SPIE Proceedings; (29) IEEE Proceedings; (30) Optica Pura y Aplicada (España); (31) Journal of Photoenergy; (32) OSA Continuum; (33) International Journal of Optics; (34) Lighting Research & Technology.
6. Miembro del "*International Advisory Committee*" para el congreso científico internacional "CIMTEC 2018", del Symposium "Materials and Technologies for Solid State Lighting" Italy (2018).
7. Co-Chair de la Conferencia "Imaging Processing, Color and Vision". *Optical Society of America, and Latin America Optics & Photonics Conference (OSA-LAOP)*, Lima Peru (2018).
8. Miembro del "*International Advisory Committee*" para el congreso científico internacional "Optics & Photonics Taiwan, International Conference (OPTIC 2017)", Taiwán (2017).
9. Miembro del "*International Advisory Committee*" para el congreso científico internacional "Optics & Photonics Taiwan, International Conference (OPTIC 2015)", Taiwán (2015).
10. Co-Chair de "Optics and Photonics in Green Technologies" del congreso científico internacional: Latin America Optics & Photonics Conference (LAOP), Cancun, Mexico (2014).
11. Miembro del "*International Advisory Committee*" para el congreso científico internacional "13th CIMTEC", del Symposium "Materials and Technologies for Solid State Lighting" Tuscany, Italy (2014).
12. Miembro del "*International Advisory Committee*" para el congreso científico internacional "Optics & Photonics Taiwan, International Conference 2014 (OPTIC 2014)", Taiwán (2014).
13. Miembro del "*Program Committee*" para el congreso científico internacional "Reliability of Advanced Light Sources RALS 2014", Taiwan (2014).
14. Miembro del "*International Advisory Committee*" para el congreso científico internacional "Optics & Photonics Taiwan, International Conference 2013 (OPTIC 2013)", Taiwán (2013).
15. Miembro del "*International Advisory Committee*" para el congreso científico internacional "The Fourth Asia-Pacific Light Sources Workshop 2011", Taiwán (2011).
16. Chair de Sesión en 5 congresos científicos internacionales: SPIE Optics+Photonics, Annual Meeting of the International Society for Optics and Photonics (SPIE), USA (2015); SPIE Optics+Photonics, Annual Meeting of SPIE, USA (2013); "The Fourth Asia-Pacific Light Sources Workshop", Taiwan (2011); "22nd General Congress of the International Commission for Optics (ICO-22)", Mexico (2011); y en "3rd Photonics and OptoElectronics Meetings (POEM 2010)", China (2010).
17. Miembro de la Comisión Evaluadora de la Convocatoria de CONACYT Ciencia Básica 2017-2018.
18. Miembro de la Comisión Evaluadora de la Convocatoria de CONACYT Ciencia Básica 2016.
19. Miembro de la Comisión Evaluadora de la Convocatoria de Investigación en Fronteras de la Ciencia de CONACYT 2016.
20. Miembro de Comité de Evaluación del Padrón Nacional de Posgrado de Calidad (PNPC) de CONACYT 2013.
21. Revisor de 12 Proyectos nacionales (CONACYT) e internacionales (nombrado 30 veces).

Publicaciones Científicas

Más Citados (Top 5)

1. I. Moreno, C.C. Sun, "Modeling the radiation pattern of LEDs," Optics Express, vol. 16 (3), 1808 (2008). (400 citas)
2. I. Moreno, M. Avendaño-Alejo, R. Tzonchev, "Designing light-emitting diode arrays for uniform near-field irradiance," Appl Opt (2006). (350 citas)
3. I. Moreno, U. Contreras, "Color distribution from multicolor LED arrays," Optics Express, vol. 15 (6), 3607 (2007). (162 citas)
4. X. H. Lee, I. Moreno, C. C. Sun, "High-performance LED street lighting using microlens arrays," Opt. Express 21, 10612 (2013). (160 citas)
5. I. Moreno, J. J. Araiza, M. Avendano-Alejo, "Thin-film spatial filters," Optics Letters, vol. 30 (8), 914-916 (2005). (122 citas)

Lista Completa

Internacionales con arbitraje riguroso:

1. I. Moreno and P. X. Viveros-Méndez, "Modeling the irradiation pattern of LEDs at short distances," Opt. Express 29, 6845-6853 (2021)
2. P. X. Viveros-Méndez, I. Moreno, L. Nuñez-Magos and S. Aranda-Espinoza, "Aggregation of superparamagnetic colloids strongly confined in spherical cavities under magnetic fields," Molecular Physics, In Press (2021).
3. J. DelOlmo-Márquez, G. Castillo-Santiago, M. Avendaño-Alejo, I. Moreno, E. Román-Hernández, M. C. Lopez-Bautista, "Ronchi-Hartmann type null screens for testing a plano-freeform surface with a detection plane inside the caustic surface" Opt. Express 29, 23300-23314 (2021).
4. I. Moreno, M. Avendaño-Alejo, C. P. Castañeda-Almanza, "Nonimaging Metaoptics," Optics Letters, 45, 2744-2747 (2020).
5. I. Moreno, "LED irradiance pattern at short distances," Appl. Opt. 59, 190-195 (2020).
6. D. Lopez-Betancur, I. Moreno, C. Guerrero-Mendez, D. Gómez-Meléndez, M. de J. Macias P., C. Olvera-Olvera, "Effects of Colored Light on Growth and Nutritional Composition of Tilapia, and Biofloc as a Food Source," Appl. Sci., 10(1), 362 (2020).
7. C. Guerrero-Mendez, T. Saucedo-Anaya, I. Moreno, M.A. Esquivel, C. Olvera, D. Lopez-Betancur, "Digital Holographic Interferometry Without Phase Unwrapping by Convolutional Neural Network for Concentration Measurements in Liquid Samples," Appl. Sci. 10, 4974 (2020).
8. A. Arredondo, H. Desirena, I. Moreno, I. E. Orozco-Hinostrroza, E. De la Rosa, "Dual color tuning in Ce³⁺ doped oxyfluoride ceramic phosphor plate for white LED application." Journal of the American Ceramic Society, 1425-1434 (2019).
9. I.E. Orozco-Hinostrroza, H. Desirena, J. Hernandez, J. Molina, I. Moreno, and E. De la Rosa, "Eu³⁺-doped glass as a color rendering indexenhancer in phosphor-in-glass" Journal of the American Ceramic Society, vol. 101, 2914–2920 (2018).
10. C-C Sun, X-H Lee, I. Moreno, C-H Lee, Y-W Yu, T-H Yang, T-Y Chung, "Design of LED Street Lighting Adapted for Free-form Roads" IEEE Photonics Journal, Vol. 9, p. 8200213 (2017).
11. J. S. Pérez-Huerta, Tonatiuh Saucedo-Anaya, I. Moreno, D. Ariza-Flores, and B. Saucedo-Orozco, "Digital holographic interferometry applied to the investigation of ignition process," Opt. Express 25, 13190-13198 (2017)
12. M. Avendaño-Alejo, L. Castañeda, I. Moreno, "Exact wavefronts and caustic surfaces produced by planar ripple lenses" Opt. Express, Vol. 23, pp. 21637-21649 (2015).
13. I. Moreno, Y. Jauregui-Sánchez, M. Avendaño-Alejo, "Invisibility assessment: a visual perception approach," Journal of the Optical Society of America A, Vol. 31, 2244-2248 (2014).
14. I. Moreno, M. Avendaño-Alejo, T. Saucedo-A, A. Bugarin, "Modeling LED street lighting," Applied Optics 53, 4420-4430 (2014).
15. X. H. Lee, I. Moreno, C. C. Sun, "High-performance LED street lighting using microlens arrays," Opt. Express 21, 10612 (2013).
16. I. Moreno, "Image-like illumination with LED arrays: design," Optics Letters 37, 839-841 (2012).
17. C. C. Sun, I. Moreno, Y. C. Lo, B. C. Chiu, W. T. Chien, "Collimating lamp with well color mixing of red/green/blue LEDs," Optics Express, Vol. 20, A75-A84 (2012).
18. C. Hernandez-Aguilar, A. Cruz-Orea, R. Ivanov, A. Dominguez, A. Carballo, I. Moreno, R. Rico, "The Optical Absorption Coefficient of Maize Seeds Investigated by Photoacoustic Spectroscopy" Food Biophysics, Vol. 6, 481-486 (2011).
19. A.C. Hernandez, O.A. Cruz, R. Ivanov, P.A. Dominguez, C.A. Carballo, I. Moreno, "Optical properties of maize seeds," Int. Agrophysics, Vol. 25, 223-227 (2011).
20. I. Moreno, "Illumination uniformity assessment based on human vision," Optics Letters 35, 4030-4032 (2010).
21. I. Moreno, "Output irradiance of tapered lightpipes," Journal of the Optical Society of America A, Vol. 27, 1985-1993 (2010).
22. I. Moreno, D. Bermúdez, M. Avendaño-Alejo, "Light-emitting diode spherical packages: an equation for the light transmission efficiency," Applied Optics 49, 12-20 (2010).
23. C. C. Sun, W. T. Chien, I. Moreno, C. T. Hsieh, M-C Lin, S-L Hsiao, X-H Lee "Calculating model of light transmission efficiency of diffusers attached to a lighting cavity," Opt. Express 18, 6137-6148 (2010)
24. M. Avendaño-Alejo, L. Castañeda, I. Moreno, "Caustics and wavefronts by multiple reflections in a circular surface," American Journal of Physics, Vol. 78, 1195-1198 (2010).
25. M. Avendaño-Alejo, L. Castañeda, I. Moreno, "Properties of caustics produced by a positive lens: meridional rays," Journal of the Optical Society of America A, Vol. 27, 2252-2260 (2010).
26. R. Ivanov, E. Marin, I. Moreno, C. Araujo, "Electropyroelectric technique for measurement of the thermal effusivity of liquids" J. Phys. D: Appl. Phys., Vol. 43, 225501 (2010).
27. T. Saucedo A., M. H. De la Torre-Ibarra, F. Mendoza-Santoyo, I. Moreno, "Digital holographic interferometer using simultaneously three lasers and a single monochrome sensor for 3D displacement measurements" Opt. Express 18, 19867 (2010).
28. P. Mobili, A. Londero, G. De Antoni, A. Gómez-Zavaglia, C. Araujo-Andrade, H. Ávila-Donoso, R. Ivanov-Tzonchev, I. Moreno, C. Frausto-Reyes, "Multivariate analysis of Raman spectra applied to microbiology: Discrimination of microorganisms at the species level" Rev. Mex. Fis. Vol. 56, 378-385 (2010).
29. I. Moreno, C.C. Sun, R. Ivanov, "Far-field condition for light-emitting diode arrays," Applied Optics 48, 1190-1197 (2009).
30. I. Moreno, C.C. Sun, "Three-dimensional measurement of light-emitting diode radiation pattern: a rapid estimation," Meas. Sci. Technol., Vol. 20, p. 075306 (2009).
31. C.C. Sun, W. T. Chien, I. Moreno, C. C. Hsieh, "Analysis of the far-field region of LEDs," Optics Express 17, 13918 (2009).
32. R Ivanov, E Marín, A Cruz-Orea, J. L. Pichardo-Molina, I. Moreno, C Araujo-Andrade, "Differential sensor in front photopyroelectric technique: II. Experimental" J. Phys. D: Appl. Phys., vol. 42, p. 125504 (2009).
33. I. Moreno, C.C. Sun, "Modeling the radiation pattern of LEDs," Optics Express, vol. 16 (3), 1808-1819 (2008).

34. C. C. Sun, I. Moreno, S. H. Chung, W. T. Chien, C. T. Hsieh, T. H. Yang, "Brightness management in a direct LED backlight for LCD TVs," *Journal of the Society for Information Display*, vol. 16 (4), 519-526 (2008).
35. M. Avendaño-Alejo, R. Diaz-Urbe, I. Moreno, "Caustics caused by refraction in the interface between an isotropic medium and a uniaxial crystal," *Journal of the Optical Society of America A*, vol. 25 (7), 1586-1593 (2008).
36. R. Ivanov, G. Gutierrez, J. L. Pichardo, I. Moreno, A. Cruz, E. Marin, "Differential sensor in front photopyroelectric technique. I. Theory," *J. Phys. D: Appl. Phys.*, vol. 41 (8), p. 085106 (2008).
37. I. Moreno, U. Contreras, "Color distribution from multicolor LED arrays," *Optics Express*, vol. 15 (6), 3607-3618 (2007).
38. I. Moreno, J. Muñoz, R. Ivanov, "Uniform illumination of distant targets using a spherical light-emitting diode array," *Optical Engineering*, vol. 46 (3), p. 033001 (2007).
39. W. T. Chien, C. C. Sun, I. Moreno, "Precise optical model of multi-chip white LEDs," *Opt. Express*, vol. 15 (12), 7572 (2007).
40. M. Avendaño-Alejo, I. Moreno, O. Stavroudis, "Minimum deviation angle in uniaxial prisms," *Journal of the Optical Society of America A*, vol. 24 (8), 2431-2437 (2007).
41. I. Moreno, M. Avendaño-Alejo, R. I. Tzonchev, "Designing light-emitting diode arrays for uniform near-field irradiance," *Applied Optics*, vol. 45 (10), 2265-2272 (2006).
42. I. Moreno, J. J. Araiza, M. Avendaño-Alejo, "Thin-film spatial filters," *Optics Letters*, vol. 30 (8), 914-916 (2005).
43. I. Moreno, "Jones matrix for image-rotation prisms," *Applied Optics*, vol. 43 (17), 3373-3381 (2004).
44. I. Moreno, G. Paez, M. Strojnik, "Reversal and rotationally shearing interferometer," *Optics Comm.* 233 (4-6), 245-252 (2004).
45. I. Moreno, G. Paez, M. Strojnik, "Polarization transforming properties of Dove prisms," *Optics Comm.* 220 (4-6), 257-268 (2003).
46. I. Moreno, G. Paez, M. Strojnik, "Dove prism with increased throughput for implementation in a rotational-shearing interferometer," *Applied Optics*, vol. 42 (22), 4514-4521 (2003).

Internacionales con revisión editorial:

47. I. Moreno, "Irradiance pattern model of LED at short distances," in OSA Advanced Photonics Congress (AP) 2019 (IPR, Networks, NOMA, SPPCom, PVLED), OSA Technical Digest (Optical Society of America, 2019), paper JT4A.16.
48. D. Lopez-Betancur, C. Olvera-Olvera, I. Moreno-Hernandez, C. Guerrero-Mendez, "Effect of the RGB Wavelengths of LED Light on Growth Rates of Nile Tilapia Fry in Biofloc Technology (BFT) Systems," *International Journal of Bioscience, Biochemistry and Bioinformatics*, Vol. 9, Number 4, 231-236 (2019).
49. I. Moreno, P. X. Viveros-Méndez, and T. Saucedo-Anaya, "An irradiance formula of LEDs at near zone," in OSA Advanced Photonics Congress (AP) 2019 (IPR, Networks, NOMA, SPPCom, PVLED), OSA Technical Digest (Optical Society of America, 2019), paper JW4A.3.
50. I. Moreno, I. R. Ramos-Romero, "Light spectrum for maximum luminous efficacy of radiation and high color quality", *Proc. SPIE 10745*, Paper 107450P (2018).
51. I. Moreno, Mauricio Cruz, Flor Lozano, "Multifractal streetlight analysis from outer space at night", *Proc. SPIE Vol. 10765*, paper 107650L (2018).
52. I. Moreno, "Color multifractal analysis of city lights from outer space," in Latin America Optics and Photonics Conference, (Optical Society of America, 2018), paper Th5C.2.
53. P. E. Castillo, H. Desirena, and I. Moreno, "High emission Intensity of green light in glass ceramic for LED's," in *Latin America Optics and Photonics Conference*, (Optical Society of America, 2016), paper LTu4A.49.
54. A. Arellano, I. Martinez, H. Desirena, I. Moreno, and E. De la Rosa, "Persistent luminescence of Eu²⁺ doped glass ceramic for AC LED," in *Latin America Optics and Photonics Conference*, (Optical Society of America, 2016), paper LTu4A.46.
55. I. Moreno, P. Castillo, "Lensless microscopy for shining light sources," in Latin America Optics and Photonics Conference, OSA Technical Digest (online) (Optical Society of America, 2014), paper LTh4A.34.
56. J. A. Rios-Viramontes, I. Moreno, "Effect of smart-phone screen brightness on color reproduction: camera-display system," in Latin America Optics and Photonics Conference, OSA Technical Digest (online) (Optical Society of America, 2014), paper LTh4A.35.
57. I. Moreno, N. Rodriguez, "Multifunctional LED packaging for simple, color-tunable spotlights", *SPIE Newsroom*, (2013).
58. I. Moreno, N. Rodriguez, J. C. Basilio, "Simultaneous color-mixing and collimation within LED package," *SPIE Vol. 8841* (2013).
59. I. Moreno, N. Rodriguez, "New Use of LED Light: Intense Concentration into a Small Focal Spot," in Renewable Energy and the Environment Optics and Photonics Congress, OSA Technical Digest (online) (Optical Society of America, 2012), paper LT3B.4.
60. Y-C Lo, I. Moreno, B-C Chiu, W-T Chien, J-Y Cai, Y-Y Chang, C-C Sun, "Color mixing collimating lamp based on RGB LEDs," *SPIE Vol. 8486*, paper 84860T (2012).
61. D. Esparza, I. Moreno, "Solar concentrator with diffuser segments" *SPIE Vol. 8011*, paper 80117B (2011).
62. D. Esparza, I. Moreno, "Color patterns in a tapered lightpipe with RGB LEDs" *SPIE Vol. 7786*, paper 77860I (2010).
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2. Posdoctorado: **Dra. Claudia Andrea Vidales Basurto**. (a) "Análisis multifractal de imágenes satelitales nocturnas de ciudades". 2019-2020. (b) "Modelado avanzado de irradiación con LEDs". 2021-2022.
3. Posdoctorado: **Dr. José Ernesto Olvera González**. "Iluminación LED pulsada en Agricultura". 2013.
4. Doctorado: **Daniela Paola López Betancur**. "Iluminación LED en cultivos intensivos de tilapia y monitoreo de sólidos suspendidos". 2020.
5. Doctorado: **Cosmy Polet Castañeda Almanza**. "Teoría de iluminación con metalentes". En Proceso.
6. Maestría: **Edgar Dávila Arévalo**. "Estudio de metalentes TIR". En Proceso.
7. Maestría: **Thaire Valeria Galván**. "Metalentes y el Método de Cuerdas". En Proceso.
8. Maestría: **Diana Paola García Moreira**. "Estudio de deshidratación de frutas con secador solar". En Proceso.
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19. Licenciatura: **Yessenia Jáuregui Sánchez**. "Análisis de la Invisibilidad Óptica basada en el Sistema Visual Humano". 2013.
20. Licenciatura: **Daniel Huerta**. "Modelo óptico de LEDs multicolor para optimizar la eficiencia luminosa y el IRC". 2013.
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