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Departamento de Investigación en Física  
Física de Radiaciones  
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## Qualifications

PhD, Doctorado en Ciencias con Especialidad en Física de Materiales, Centro de Investigación Científica y de Educación Superior de Ensenada  
1993 → 1996

Award Date: 4 Jul 1996

Master, Maestría en Física, Universidad de Sonora  
1991 → 1993

Award Date: 13 Jul 1993

Bachelor, Licenciatura en Física, Universidad de Sonora  
1987 → 1991

Award Date: 31 Jan 1992

## Research Interests

Estudio de las propiedades luminiscentes de materiales nano y microfósforos de alta eficiencia de recombinación (superluminiscentes)

Estudio de los efectos de la radiación en alimentos con fines de esterilización y preservación

Estudio de materiales biocompatibles para dosimetría clínica (in situ y tiempo real)

Física médica.

## Employment

### Departamento de Investigación en Física

Universidad de Sonora

Mexico

1 Jan 1942 → present

### Física de Radiaciones

Universidad de Sonora

Mexico

1 Jan 1942 → present

## Research outputs

### The role of rare earth elements in three-way catalysts: Implications for automobile emission control

Navarro-Espinoza, S., Meza-Figueroa, D., Meléndrez-Amavizca, R., Barboza-Flores, M., Soto-Puebla, D., Ruiz-Torres, R., Silva-Campa, E. & Paz-Moreno, F., Jan 2025, In: *Ceramics International*.

### The role of rare earth elements in three-way catalysts: Implications for automobile emission control

Navarro-Espinoza, S., Meza-Figueroa, D., Meléndrez-Amavizca, R., Barboza-Flores, M., Soto-Puebla, D., Ruiz-Torres, R., Silva-Campa, E. & Paz-Moreno, F., 2025, (Accepted/In press) In: *Ceramics International*.

### Influence of gamma-ray irradiation on polystyrene food container weathering

Val-Félix, L. A., Madera-Santana, T. J., Rodríguez Félix, D. E., Meléndrez-Amavizca, R., Quintana-Owen, P., Soto-Valdez, H. & Martínez-Colunga, G., Dec 2024, In: *Radiation Physics and Chemistry*. 225, 112084.

**Commercial nanodiamonds for precise fluorescence-based temperature sensing**

Pedroza-Montero, F. A., Santacruz-Gomez, K. J., Meléndrez-Amavizca, R. & Barboza-Flores, M., 12 Aug 2024, In: Applied Physics Letters. 125, 7, 073701.

**Photocurrent Enhancement by Copper Incorporation in Chemical-Solution-Synthesized Inorganic Lead Perovskite Thin Films**

Borges-Doren, I., Cabrera-German, D., Melendrez-Amavizca, R., Hu, H. & Sotelo-Lerma, M., 2 Apr 2024, In: ACS Omega. 9, 13, p. 14985-14996 12 p.

**Thermoluminescent composites of sintered synthetic-topaz/in situ corundum for dosimetry by a novel reversible process**

Sinclair, S. A., Pech-Canul, M. I., Acosta-Enríquez, M. C., Meléndrez Amavizca, R., Sala Crist, A. & Marcazzó, J., 15 Feb 2024, In: Heliyon. 10, 3, e25025.

**Al<sub>2</sub>O<sub>3</sub>/Si NPs multilayered antireflective coating to enhance the photovoltaic performance of Solar Cells.**

García, R., Ramos Carrasco, A., Berman Mendoza, D., Ramírez-Espinoza, R., Vázquez, J., Rangel, R., Meléndrez Amavizca, R. & Bartolo-Pérez, P., 2024, In: Journal of Materials Science: Materials in Electronics.

**"Hurdley technologies" utilized to improve postharvest life of asparagus spears (*Asparagus officinalis* L.)**

Tiznado-Hernández, M. E., Gardea-Bejar, A. A., Sánchez-Estrada, A., Orozco-Avitia, J. A., Ojeda-Contreras, A. J., Troncoso-Rojas, R. & Melendrez-Amavizca, R., 2024, In: Advances in Horticultural Science. 38, 1, p. 35-45 11 p.

**Al<sub>2</sub>O<sub>3</sub>/Si NPs multilayered antireflective coating to enhance the photovoltaic performance of solar cells**

Ramos-Carrasco, A., Berman-Mendoza, D., Ramírez-Espinoza, R., Gutierrez, R. G., Vazquez-Arce, J. L., Rangel, R., Melendrez-Amavizca, R. & Bartolo-Pérez, P., Dec 2023, In: Journal of Materials Science: Materials in Electronics. 34, 36, 2328.

**Thermoluminescence of beta irradiated SrHfO<sub>3</sub> powders synthesized by the Pechini-type sol-gel method**

Molano-Mendoza, M., Meléndrez, R. & González, L. A., Nov 2023, In: Journal of Luminescence. 263, 120048.

**Persistent luminescence of commercial TLD-100 dosimeter: Using shallow traps for radiation dosimetry**

Salas-Juárez, C. J., Ugalde-Valdés, M. A., Guzmán-Mendoza, J., Nolasco-Altamirano, D., Martínez-Gil, M., Gómez-Dominguez, C. E., Guarín, C. A., Melendrez, R. & Rivera-Montalvo, T., Sep 2023, In: Radiation Measurements. 167, 106997.

**Persistent luminescence of ZrO<sub>2</sub>:Tb<sup>3+</sup> after beta particle irradiation for dosimetry applications**

Salas-Juárez, C. J., Burruel-Ibarra, S. E., Gil-Tolano, M. I., Rodríguez, A. P., Romo-García, F., García-Haro, A. R., Brown, F., Yacamán-Valdez, M., Iriqui-Razcón, J. L., Martínez-Gil, M. & Melendrez, R., May 2023, In: Journal of Luminescence. 257, 119712.

**Thermal Annealing Effect on the Thermoluminescence Properties of Commercial High-Pressure High-Temperature Diamond Powders**

Calderón-Martínez, M. C., Gil-Tolano, M. I., Cruz-Zaragoza, E., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Feb 2023, In: Physica Status Solidi (A) Applications and Materials Science. 220, 4, 2200279.

**Thermoluminescence radiation dosimetry in Sonoran zeolite exposed to beta particle irradiation**

Burruel-Ibarra, S. E., Salas-Juarez, C. J., Gil-Tolano, M. I., Ramos-Velazquez, J. P., Soria-Hernandez, J. I., Garcia-Haro, A. R., Alvarado-Ibarra, J., Brown-Bojorquez, F., Moreno-Corral, R. & Melendrez, R., Feb 2023, In: Radiation Physics and Chemistry. 203, 110631.

**Effect of reducing and oxidizing atmosphere on photoluminescence of undoped and Eu doped nanostructured CaAl<sub>2</sub>O<sub>4</sub>**

Chernov, V., Piters, T. M., Ruiz-Torres, R., Salas-Castillo, P., Zúñiga-Rivera, N. J., Meléndrez, R. & Barboza-Flores, M., Nov 2022, In: Journal of Luminescence. 251, 119196.

**Optical properties and functional groups characterization of commercial HPHT micro-diamond samples**

Calderón-Martínez, M. C., Gil-Tolano, M. I., Navarro-Espinoza, S., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Sep 2022, In: Optical Materials. 131, 112592.

**Physicochemical characterization and biodegradation test of oxo-degradable linear low-density polyethylene films subjected to gamma irradiation and accelerated weathering**

Val-Félix, L. A., Madera-Santana, T. J., Pillai, S. D., Soto-Valdez, H., Rodríguez Félix, D. E., Quintana-Owen, P., Peralta, E. & Martínez-Colunga, G., 1 Aug 2022, In: Materials Chemistry and Physics. 287, 126282.

**Thermoluminescence properties of high-dose gamma-irradiated diamond films**

Cruz-Zaragoza, E., Marcazzó, J., Pérez Ramírez, E., Meléndrez, R. & Barboza-Flores, M., 18 Mar 2021, In: Journal of Physics: Conference Series. 1723, 1, 012052.

**Alterations on HeLa cell actin filaments induced by PEGylated gold nanorod-based plasmonic photothermal therapy**

Santacruz-Gomez, K., Melendrez, R., Licerio-Ramírez, M., Gallego-Hernandez, A. L., Pedroza-Montero, M. & Lal, R., Feb 2021, In: Journal of Nanoparticle Research. 24, 2, 38.

**Thermoluminescence response of detonation diamond microparticles exposed to beta and alpha radiation**

Gil-Tolano, M. I., Calderón-Martínez, M. C., Román-López, J., Cruz-Zaragoza, E., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Jun 2020, In: Diamond and Related Materials. 106, 107823.

**Effect of thermal treatment on luminescence properties of long persistent  $\text{CaAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  synthesized by combustion method**

Ruiz-Torres, R., Chernov, V., Salas-Castillo, P., Zúñiga-Rivera, N. J., Diaz-Torres, L. A., Meléndrez, R. & Barboza-Flores, M., Mar 2020, In: Optical Materials. 101, 109763.

**Characterization of epoxy-nanoparticle composites exposed to gamma & UV radiation for aerospace applications**

Torres, M., Franco-Urquiza, E. A., González-García, P., Bárcena-Balderas, J., Piedra, S., Madera, T., Meléndrez, R. & Quintana, P., 1 Jan 2020.

**Thermoluminescence and infrared stimulated luminescence in long persistent monoclinic  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  and  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Nd}^{3+}$  phosphors**

Chernov, V., Salas-Castillo, P., Díaz-Torres, L. A., Zúñiga-Rivera, N. J., Ruiz-Torres, R., Meléndrez, R. & Barboza-Flores, M., 13 Apr 2019, In: Optical Materials. 92, p. 46-52 7 p.

**Production of Biocomposites Using Different Pre-treated Cut Jute Fibre and Polylactic Acid Matrix and Their Properties**

Burrola-Núñez, H., Herrera-Franco, P., Soto-Valdez, H., Rodríguez-Félix, D. E., Meléndrez-Amavizca, R. & Madera-Santana, T. J., 1 Jan 2019, (Accepted/In press) In: Journal of Natural Fibers. 18, 11, p. 1604-1617 14 p.

**Production of Biocomposites Using Different Pre-treated Cut Jute Fibre and Polylactic Acid Matrix and Their Properties**

Burrola-Núñez, H., Herrera-Franco, P., Soto-Valdez, H., Rodríguez-Félix, D. E., Meléndrez-Amavizca, R. & Madera-Santana, T. J., 1 Jan 2019, In: Journal of Natural Fibers.

**Synthesis and thermoluminescence of erbium-activated lithium niobate**

Muñoz, I. C., Landavazo, M. A., Brown, F., Cruz-Zaragoza, E., Alvarez-Montañón, V. E., Meléndrez-Amavizca, R., Gil-Tolano, I. & Tánori-Córdova, J., Dec 2018, In: Applied Radiation and Isotopes. 142, p. 64-70 7 p.

**Raman and Thermoluminescence Studies of HPHT Synthetic Nanodiamond Powders**

Ruiz-Valdez, C. F., Chernov, V., Meléndrez, R., Álvarez-García, S., Santacruz-Gómez, K., Berman-Mendoza, D. & Barboza-Flores, M., 21 Nov 2018, In: Physica Status Solidi (A) Applications and Materials Science. 215, 22, 1800267.

**X-Ray Thermoluminescence Dosimetry Characterization of Commercially Available CVD Diamond**

Gil-Tolano, M. I., Meléndrez, R., Álvarez-García, S., Soto-Puebla, D., Chernov, V. & Barboza-Flores, M., 21 Nov 2018, In: Physica Status Solidi (A) Applications and Materials Science. 215, 22, 1800246.

**Afterglow, thermoluminescence and optically stimulated luminescence characterization of micro-, nano- and ultrananocrystalline diamond films grown on silicon by HFCVD**

Montes-Gutierrez, J. A., Alcantar-Pena, J. J., de Obaldia, E., Zuniga-Rivera, N. J., Chernov, V., Melendrez-Amavizca, R., Barboza-Flores, M., Garcia-Gutierrez, R. & Auciello, O., May 2018, In: Diamond and Related Materials. 85, p. 117-124 8 p.

**A nanodiamond-fluorescein conjugate for cell studies**

Pedroso-Santana, S., Fleitas-Salazar, N., Sarabia-Sainz, A., Silva-Campa, E., Burgara-Estrella, A., Angulo-Molina, A., Melendrez, R., Pedroza-Montero, M. & Riera, R., Mar 2018, In: Advances in Natural Sciences: Nanoscience and Nanotechnology. 9, 1, 015013.

**Antioxidant activity of hydrated carboxylated nanodiamonds and its influence on water  $\gamma$ -radiolysis**

Santacruz-Gomez, K., Sarabia-Sainz, A., Acosta-Elias, M., Sarabia-Sainz, M., Janetanakit, W., Khosla, N., Melendrez, R., Montero, M. P. & Lal, R., 12 Feb 2018, In: Nanotechnology. 29, 12, 125707.

**Micro-structures of nanodiamonds grown on silicon by hot filament chemical vapor deposition**

Montes-Gutierrez, J. A., Garcia-Gutierrez, R., Barboza-Flores, M., Meléndrez, R., Cabanillas, R. E., Contreras, O. E., Hirata, G. A. & Rangel-Segura, R., 20 Dec 2017, In: International Journal of Chemical Reactor Engineering. 15, 6, 20170088.

**Nano alterations of membrane structure on both  $\gamma$ -irradiated and stored human erythrocytes**

Alessandra Acosta-Elias, M., Jesus Burgara-Estrella, A., Andre-i Sarabia-Sainz, J., Silva-Campa, E., Angulo-Molina, A., Josefina Santacruz-Gomez, K., Castaneda, B., Soto-Puebla, D., Irene Ledesma-Osuna, A., Melendrez-Amavizca, R. & Pedroza-Montero, M., 2 Dec 2017, In: International Journal of Radiation Biology. 93, 12, p. 1306-1311 6 p.

**Study of a Polydimethylsiloxane (PDMS) Elastomer Generated by  $\gamma$  Irradiation: Correlation Between Properties (Thermal and Mechanical) and Structure (Crosslink Density Value)**

Meléndez-Zamudio, M., Villegas, A., González-Calderón, J. A., Meléndrez, R., Meléndez-Lira, M. & Cervantes, J., 1 May 2017, In: Journal of Inorganic and Organometallic Polymers and Materials. 27, 3, p. 622-632 11 p.

**Thermally and optically stimulated luminescence in long persistent orthorhombic strontium aluminates doped with Eu, Dy and Eu, Nd**

Zúñiga-Rivera, N. J., Salas-Castillo, P., Chernov, V., Díaz-Torres, L. A., Meléndrez, R., García-Gutierrez, R., Carrillo-Torres, R. C. & Barboza-Flores, M., 1 May 2017, In: Optical Materials. 67, p. 91-97 7 p.

**Properties of the HPHT diamond when used as a soft X-Ray detector**

Melendrez-Amavizca, R., Diaz-Lagos, M. & Martinez-Ovalle, S. A., Apr 2017, In: Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales. 41, 159, p. 168-173 6 p.

**Thermally stimulated luminescence and persistent luminescence of  $\beta$ -irradiated YAG:Pr<sup>3+</sup> nanophosphors produced by combustion synthesis**

Santacruz-Gomez, K., Meléndrez, R., Gil-Tolano, M. I., Jimenez, J. A., Makale, M. T., Barboza-Flores, M., Castaneda, B., Soto-Puebla, D., Pedroza-Montero, M., McKittrick, J. & Hirata, G. A., 1 Nov 2016, In: Radiation Measurements. 94, p. 35-40 6 p.

**Effect of gamma irradiation on physicochemical properties of commercial poly(lactic acid) clamshell for food packaging**

Madera-Santana, T. J., Meléndrez, R., González-García, G., Quintana-Owen, P. & Pillai, S. D., 1 Jun 2016, In: Radiation Physics and Chemistry. 123, p. 6-13 8 p.

**Carboxylated nanodiamonds inhibit  $\gamma$ -irradiation damage of human red blood cells**

Santacruz-Gomez, K., Silva-Campa, E., Melendrez-Amavizca, R., Teran Arce, F., Mata-Haro, V., Landon, P. B., Zhang, C., Pedroza-Montero, M. & Lal, R., 7 Apr 2016, In: Nanoscale. 8, 13, p. 7189-7196 8 p.

### **HYSYCV D Synthesis of 1D Nanostructures of TiO<sub>2</sub>**

Leal Cruz, A. L., Meléndrez Amavizca, R., Vera Marquina, A., Barboza-Flores, M. & Pech-Canul, M. I., 1 Jan 2016, In: *Nanoscience and Nanotechnology*. 6, 1A

### **Carboxylated nanodiamond and re-oxygenation process of gamma irradiated red blood cells**

Acosta-Eliás, M., Sarabia-Sainz, A., Pedrosa-Santana, S., Silva-Campa, E., Santacruz-Gomez, K., Angulo-Molina, A., Castaneda, B., Soto-Puebla, D., Barboza-Flores, M., Meléndrez, R., Álvarez-García, S. & Pedroza-Montero, M., Nov 2015, In: *Physica Status Solidi (A) Applications and Materials Science*. 212, 11, p. 2437-2444 8 p.

### **Thermoluminescence studies on HPHT diamond crystals exposed to $\beta$ -irradiation**

Gil-Tolano, M. I., Meléndrez, R., Castañeda, B., Alvarez-García, S., Pedroza-Montero, M., Soto-Puebla, D., Chernov, V. & Barboza-Flores, M., Nov 2015, In: *Physica Status Solidi (A) Applications and Materials Science*. 212, 11, p. 2507-2511 5 p.

### **AG, TL, and IRSL dosimetric properties in X-ray irradiated HPHT diamond crystals**

Gil-Tolano, M. I., Meléndrez, R., Lancheros-Olmos, J. C., Castaneda, B., Soto-Puebla, D., Chernov, V., Pedroza-Montero, M. & Barboza-Flores, M., Oct 2014, In: *Physica Status Solidi (A) Applications and Materials Science*. 211, 10, p. 2359-2362 4 p.

### **Persistent luminescence, TL and OSL characterization of beta irradiated SrAl<sub>2</sub>O<sub>4</sub>:Eu<sup>2+</sup>, Dy<sup>3+</sup> combustion synthesized phosphor**

Zúñiga-Rivera, N. J., García, R., Rodríguez-Mijangos, R., Chernov, V., Meléndrez, R., Pedroza-Montero, M. & Barboza-Flores, M., 1 May 2014, In: *Nuclear Inst. and Methods in Physics Research*, B. 326, p. 99-102 4 p.

### **Afterglow and thermoluminescence properties in HPHT diamond crystals under beta irradiation**

Chernov, V., Meléndrez, R., Gastélum, S., Pedroza-Montero, M., Píters, T., Preciado-Flores, S. & Barboza-Flores, M., Oct 2013, In: *Physica Status Solidi (A) Applications and Materials Science*. 210, 10, p. 2088-2094 7 p.

### **Dose enhancing behavior of hydrothermally grown Eu-doped SnO<sub>2</sub> nanoparticles**

Sánchez Zeferino, R., Pal, U., Meléndrez, R., Durán-Muñoz, H. A. & Barboza Flores, M., 14 Feb 2013, In: *Journal of Applied Physics*. 113, 6, 064306.

### **Viability of lymphocyte of gamma irradiated blood**

Santacruz-Gomez, K., Meléndrez, R., Castaneda, C., Barboza-Flores, M. & Pedroza-Montero, M., 2013, *World Congress on Medical Physics and Biomedical Engineering*. p. 31-33 3 p. (IFMBE Proceedings; vol. 39 IFMBE).

### **A novel fitting method for evaluating the thermal quenching parameters of TL with an application to undoped CVD diamond**

Chernov, V., Chernov, G., Meléndrez, R., Pedroza-Montero, M. & Barboza-Flores, M., Sep 2012, In: *Physica Status Solidi (A) Applications and Materials Science*. 209, 9, p. 1779-1785 7 p.

### **Assessment of OEP health's risk in nuclear medicine**

Santacruz-Gomez, K., Manzano, C., Meléndrez, R., Castaneda, B., Barboza-Flores, M. & Pedroza-Montero, M., 2012, *Medical Physics - Twelfth Mexican Symposium on Medical Physics*. p. 79-81 3 p. (AIP Conference Proceedings; vol. 1494).

### **Persistent luminescence and thermoluminescence of UV/VIS -irradiated SrAl<sub>2</sub>O<sub>4</sub>: Eu<sup>2+</sup>, Dy<sup>3+</sup> phosphor**

Pereyda-Pierre, C., Meléndrez, R., García, R., Pedroza-Montero, M. & Barboza-Flores, M., Dec 2011, In: *Radiation Measurements*. 46, 12, p. 1417-1420 4 p.

### **Heating rate effects on the TL characteristics of hot filament CVD diamond film**

Cruz-Zaragoza, E., Gastélum, S., Quispe, R., Meléndrez, R., Pedroza-Montero, M. & Barboza-Flores, M., Sep 2010, In: *Physica Status Solidi (A) Applications and Materials Science*. 207, 9, p. 2114-2118 5 p.

**Dose rate effects on the performance of MWCVD diamond films as TL gamma radiation dosimeter**

Cruz-Zaragoza, E., Gastélum, S., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Aug 2010, In: *Physica Status Solidi (A) Applications and Materials Science*. 207, 8, p. 1944-1948 5 p.

**Dose effects on the long persistent luminescence properties of beta irradiated  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  phosphor**

Pedroza-Montero, M., Castañeda, B., Gil-Tolano, M. I., Arellano-Tánori, O., Meléndrez, R. & Barboza-Flores, M., Mar 2010, In: *Radiation Measurements*. 45, 3-6, p. 311-313 3 p.

**Dosimetric assessment of mono-crystalline CVD diamonds exposed to beta and ultraviolet radiation**

Pedroza-Montero, M., Meléndrez, R., Preciado-Flores, S., Chernov, V. & Barboza-Flores, M., 2010, *Diamond Electronics and Bioelectronics - Fundamentals to Applications III*. p. 205-210 6 p. (Materials Research Society Symposium Proceedings; vol. 1203).

**Correlation between thermally and optically stimulated luminescence in beta-irradiated undoped CVD diamond**

Chernov, V., Piters, T. M., Meléndrez, R., Preciado-Flores, S., May, P. W. & Barboza-Flores, M., Sep 2009, In: *Physica Status Solidi (A) Applications and Materials Science*. 206, 9, p. 2098-2102 5 p.

**Thermoluminescence assessment of 0.5, 1.0 and 4.0  $\mu\text{m}$  thick HFCVD undoped diamond films**

Meléndrez, R., Chernov, V., May, P. W., Castañeda, B., Pedroza-Montero, M. & Barboza-Flores, M., Sep 2009, In: *Physica Status Solidi (A) Applications and Materials Science*. 206, 9, p. 2103-2108 6 p.

**Gamma-radiation effects on NaCl:Cu crystals**

Cruz-Zaragoza, E., Chernov, V., Meléndrez, R. & Flores, M. B., Jul 2009, In: *Physica Status Solidi (A) Applications and Materials Science*. 206, 7, p. 1425-1428 4 p.

**Temperature dependence of persistent luminescence in  $\beta$ -irradiated  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  phosphor**

Meléndrez, R., Arellano-Tánori, O., Pedroza-Montero, M., Yen, W. M. & Barboza-Flores, M., Jul 2009, In: *Journal of Luminescence*. 129, 7, p. 679-685 7 p.

**Thermoluminescence kinetic parameters of microwave chemically vapour-deposited diamond films at different gamma dose rates**

Cruz-Zaragoza, E., Favalli, A., Gastelum, S., Furetta, C., Meléndrez, R. & Barboza-Flores, M., Apr 2009, In: *Radiation Effects and Defects in Solids*. 164, 4, p. 211-217 7 p.

**Thermoluminescence and optically stimulated luminescence properties of  $\beta$ -irradiated  $\text{TiO}_2:\text{Yb}$  nanoparticles**

Pal, M., Pal, U., Chernov, V., Meléndrez, R. & Barboza-Flores, M., Mar 2009, In: *Journal of Nanoscience and Nanotechnology*. 9, 3, p. 1851-1857 7 p.

**Effect of Yb doping on the afterglow and thermoluminescent properties of ZnO nanophosphors**

Pal, U., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Dec 2008, In: *Journal of Nanoscience and Nanotechnology*. 8, 12, p. 6513-6518 6 p.

**Thermoluminescence properties of undoped and  $\text{Dy}^{3+}$  doped  $\text{ZrO}_2$  nanophosphor under  $\beta$ -ray irradiation**

Rodríguez, R. A., De La Rosa, E., Romero, V. H., Meléndrez, R., Sales, P., Diaz-Torres, L. A. & Barboza-Flores, M., Dec 2008, In: *Journal of Nanoscience and Nanotechnology*. 8, 12, p. 6419-6424 6 p.

**Ionoluminescence characterization of microwave and hot-filament CVD diamonds**

Del Castillo, H. C., Ruvalcaba, J. L., Belmont, E., Calderón, T., Meléndrez, R. & Barboza-Flores, M., Sep 2008, In: *Physica Status Solidi (A) Applications and Materials Science*. 205, 9, p. 2221-2225 5 p.

**Dose rate effects on the thermoluminescence properties of HFCVD diamonds**

Gastélum, S., Cruz-Zaragoza, E., Favalli, A., Meléndrez, R., Chernov, V. & Barboza-Flores, M., Jul 2008, In: *Diamond and Related Materials*. 17, 7-10, p. 1283-1287 5 p.

**The behavior of thermally and optically stimulated luminescence of  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  long persistent phosphor after blue light illumination**

Chernov, V., Meléndrez, R., Pedroza-Montero, M., Yen, W. M. & Barboza-Flores, M., Feb 2008, In: Radiation Measurements. 43, 2-6, p. 241-244 4 p.

**Thermoluminescence properties of undoped and nitrogen-doped CVD diamond exposed to gamma radiation**

Barboza-Flores, M., Gastélum, S., Cruz-Zaragoza, E., Meléndrez, R., Chernov, V., Pedroza-Montero, M. & Favalli, A., Feb 2008, In: Radiation Measurements. 43, 2-6, p. 379-382 4 p.

**Persistent luminescence dosimetric properties of UV-irradiated  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  phosphor**

Arellano-Tánori, O., Meléndrez, R., Pedroza-Montero, M., Castañeda, B., Chernov, V., Yen, W. M. & Barboza-Flores, M., Jan 2008, In: Journal of Luminescence. 128, 1, p. 173-184 12 p.

**CVD diamond applications as TL radiation dosimeters**

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## **Activities**

### **Universidad de Sonora (Organizational unit)**

Rodrigo Meléndrez Amavizca (Chair)

2016 → ...

### **Universidad Autonoma de San Luis Potosi (External organization)**

Rodrigo Meléndrez Amavizca (Member)

2014

### **Universidad de Sonora (Organizational unit)**

Rodrigo Meléndrez Amavizca (Member)

2011 → ...

## **Prizes**

### **Investigador Nacional Nivel III**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jan 2020

### **Investigador Nacional Nivel III**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jan 2025

### **Profesor con Perfil Deseable (PROMEP-PRODEP)**

Meléndrez Amavizca, Rodrigo (Recipient), 2000

**SNI Nivel 1**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jul 1999

**SNI Nivel 2**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jul 2005

**SNI Nivel 3**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jan 2015

**SNI Nivel Candidato**

Meléndrez Amavizca, Rodrigo (Recipient), 1 Jul 1996