

CURRÍCULUM VITAE



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Formación

Doctorado: Universidad Autónoma Metropolitana Iztapalapa, 2008

Maestría: ESFM-IPN, 1998

Licenciatura: ESFM-IPN, 1985

Diplomados

2008, IPN, Ciudad de México

Formación y actualización docente para un nuevo modelo educativo

Experiencia Laboral

1985-1997, UAM, Azcapotzalco, Profesor Titular tiempo parcial

Experiencia Docente

Cursos Asignados:

Mecánica Cuántica, Ecuaciones Diferenciales, Taller de Aplicaciones Matemáticas

Áreas de interés de investigación

Modelación y dinámica de sistemas complejos. Análisis de series de tiempo, dinámica no lineal, análisis fractal y multifractal. Caracterización de nano-materiales.

Publicaciones Seleccionadas (5 años a la fecha)

- Artículos en revistas
- Muñoz Diosdado, A., Rudolf-Navarro, A. H., Angulo Brown, F., Barrera Ferrer, A. G. Patterns of significant seismic quiescence on the Mexican Pacific Coast. *Physics and Chemistry of the Earth* [85–86](#), 119-130, 2015. [doi:10.1016/j.pce.2015.03.009](https://doi.org/10.1016/j.pce.2015.03.009). ISSN: 1474-7065.
- Muñoz-Diosdado, A. Aguilar Molina, A. M. Curvature Analysis of Multifractal Spectra for Time Series of RR Intervals for Patients with Congestive Heart Failure. *International Federation for Medical and Biological Engineering*. F. Ibrahim et al. (eds.), *International Conference for Innovation in Biomedical Engineering and Life*

Sciences, IFMBE Proceedings 56, 49-52, 2015. doi: 10.1007/978-981-10-0266-3_10. ISSN: 1680-0737.

- J. A. Balderas-López, M. R. Jaime-Fonseca, J. Díaz-Reyes, Y. M. Gómez-Gómez, M. E. Bautista-Ramírez, A. Muñoz-Diosdado and G. Gálvez-Coyt. Photopyroelectric Technique, in the Thermally Thin Regime, for Thermal Effusivity Measurements of Liquids. *Braz J Phys* (2016) 46:105–110, DOI 10.1007/s13538-015-0391-2. ISSN 0103-9733.
- Zamora Justo J. A., Gutiérrez Calleja, R. A., A. Muñoz Diosdado. Acquisition software development for monitor Holter prototype signals and its use for pre-diagnosis of cardiac damage based on nonlinear dynamic techniques. *AIP Conference Proceedings* 1747, 090001 (2016). ISSN: 0094-243X. doi.org/10.1063/1.4954134.
- Gutiérrez Calleja, R. A., Zamora Justo J. A., A. Muñoz Diosdado. Nonlinear dynamics methods for tachogram series analysis based on detrended fluctuation analysis and Higuchi's fractal dimension. *AIP Conference Proceedings* 1747, 090006 (2016). ISSN: 0094-243X. doi.org/10.1063/1.4954139.
- Muñoz-Diosdado, A., Gálvez-Coyt, G., Solís Montufar, E. Sample entropy applied to the analysis of synthetic time series and tachograms. *Journal of Physics: Conf. Series* 792 (2017) 012062, doi:10.1088/1742-6596/792/1/012062.
- Gálvez-Coyt, G., Muñoz, A. Three-dimensional cellular automata as a model of a seismic fault. *Journal of Physics: Conf. Series* 792 (2017) 012087, doi:10.1088/1742-6596/792/1/012087.
- Balderas-López, J. A., Jaime-Fonseca, M. R., Gálvez Coyt, G., Muñoz-Diosdado, A., Pescador, J. A., Chávez-Sandoval, B. E. Photothermal Techniques for Thermal Characterization of Linear Alcohols. *Int J Thermophys* (2018) 39: 111. <https://doi.org/10.1007/s10765-018-2432-x>.
- J. Pérez-Oregon, A. Muñoz-Diosdado, A. H. Rudolf-Navarro, A. Guzmán-Sáenz and F. Angulo-Brown. On the possible correlation between the Gutenberg-Richter parameters of the frequency-magnitude relationship. *Journal of Seismology* 22(3), 1025-1035, (2018) <https://doi.org/10.1007/s10950-018-9757-6>.
- Carlos Carrizales-Velazquez, Adolfo Rudolf-Navarro, Israel Reyes-Ramírez, Alejandro Muñoz-Diosdado, Lev Guzmán-Vargas and Fernando Angulo-Brown. Multifractality of Pseudo-Velocities and Seismic Quiescence Associated with the Tehuantepec M8.2 EQ. *Entropy* 2018, 20(12), 961-973; <https://doi.org/10.3390/e20120961>.
- Ana María Aguilar Molina, Fernando Angulo Brown, Alejandro Muñoz-Diosdado. Multifractal Spectrum Curvature of RR Tachograms of Healthy People and Patients with Congestive Heart Failure, a New Tool to Assess Health Conditions. *Entropy* 2019, 21(6), 581, 17 pages. <https://doi.org/10.3390/e21060581>.
- J. Pérez Oregón, A. M. Aguilar Molina, A. Rudolf-Navarro, Muñoz-Diosdado, F. Angulo Brown. Anticorrelation between the elastic ratio and the b-value in a spring-block SOC-model of earthquakes. *Journal of Physics: Conf. Series* 1221 (2019) 012061, doi:10.1088/1742-6596/792/1/012061.
- A. M. Aguilar Molina, J. Pérez Oregón, A. Muñoz Diosdado, F. Angulo Brown. Multifractal Analysis for the Overlapping Windows Method of a Time Series of Synthetic Earthquakes obtained with a Spring-Block Model. *Journal of Physics: Conf. Series* 1221 (2019) 012066, doi: 10.1088/1742-6596/1221/1/012066.
- Paulina Abrica-González, José Alberto Zamora-Justo, Antonio Sotelo-López, Guillermo Rocael Vázquez-Martínez, José Abraham Balderas-López, Alejandro Muñoz-Diosdado and Miguel Ibáñez-Hernández. Gold nanoparticles with chitosan, N-acylated chitosan, and chitosan oligosaccharide as DNA carriers. *Nanoscale Research Letters* (2019) 14:258. <https://doi.org/10.1186/s11671-019-3083-y>.
- Jennifer Perez-Oregon Alejandro Muñoz-Diosdado, Adolfo Helmut Rudolf-Navarro, Fernando Angulo-Brown. Some common features between a spring-block self-

organized critical model, stick-slip experiments with sandpapers and actual seismicity. *Pure and Applied Seismology*, 2019.

- José Alberto Zamora-Justo, Paulina Abrica-González, Guillermo Rocaél-Vázquez Martínez, Alejandro Muñoz-Diosdado, José Abraham Balderas-López and Miguel Ibañez-Hernández. Polyethylene glycol coated gold nanoparticles as DNA and atorvastatin delivery systems and cytotoxicity evaluation. *Journal of Nanomaterials*, 2019.

- **Capítulos de libros**

- Muñoz Diosdado, A. Detrended Fluctuation Analysis and Higuchi's Windowing Method Applied to an Analysis of Southern California Seismicity. Chapter 4, *Earthquake Engineering - From Engineering Seismology to Optimal Seismic Design of Engineering Structures*. In Tech, Editor Abbas Moustafa, 408 pages, May, 2015, 111-136, ISBN 978-953-51-2039-1. DOI: 10.5772/59660.

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Reconocimientos

- Presea Lázaro Cárdenas del IPN en 1981.
- Participante en el Proyecto "Termodinámica endorreversible y sistemas dinámicos", que recibió el Premio a la Investigación en el IPN 1999.
- Reconocimiento en el IPN por haber realizado trabajo académico de excelencia en el año sabático durante el ejercicio 1997-1998.
- Medalla al mérito universitario, por la Universidad Autónoma Metropolitana, 2009.
- Presea Juan de Dios Bátiz, 2018, IPN.
- Medalla al Mérito, Maestro Rafael Ramírez, 2018. Gobierno de la República. México.

Actividades extra académicas (Cursos, congresos, proyectos, convenios etc.) (3 años a la fecha)

- Alejandro Muñoz-Diosdado, Ana María Aguilar-Molina. Multifractal analysis used to characterize the physical condition of subjects making exercise. World Congress on Medical Physics and Biomedical Engineering. Praga, República Checa, 2018.
- Zamora-Justo José Alberto, Abrica-González Paulina, Vázquez-Martínez Guillermo Rocaél, Chavez-Sandoval Blanca Estela, Ibañez-Hernández Miguel Ángel Antonio, Balderas-López José Abraham, Muñoz-Diosdado, Alejandro. Cytotoxicity and Cellular Uptake Study of Polyethylene Glycol Coated Gold Nanoparticles. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Hawaii USA, 2018.
- Pérez López Nancy Gabriela, Salcedo Martínez Amparo Zamora-Justo José Alberto, Muñoz-Diosdado Alejandro. Nonlinear Dynamic Methodologies Applied to the Analysis of Stress Tests Tachograms. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Hawaii USA, 2018.
- J.A. Zamora-Justo, P. Abrica-González, A. Muñoz Diosdado, M.A. Ibañez-Hernández and J.A. Balderas López. Cellular transfection study of polyethylene glycol coated gold nanoparticles and cytotoxicity. International Congress on Transdisciplinary Nanoscience and Nanotechnology, Mexico City, 2018.
- P. Abrica-González, J.A. Zamora-Justo, A. Muñoz Diosdado, M.A. Ibañez-Hernández and J.A. Balderas López. Gold nanoparticles coated with modified chitosan for developing DNA carriers. International Congress on Transdisciplinary Nanoscience and Nanotechnology, Mexico City, 2018.

- Salcedo-Martínez, J. A. Zamora-Justo, A. Muñoz-Diosdado. Analysis of tachograms of healthy subjects and congestive patients insleep and wake state and in stress tests with Hurst exponent. 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Berlin Alemania, 2019.
- N. G. Pérez-López, A Muñoz-Diosdado. Presence of atrial and ventricular extrasystoles during intervals of moderate physical activity in healthy subjects. 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Berlin Alemania, 2019.
- Muñoz Diosdado. Calculating entropy of times series with different mathematical methodologies: The case of cardiac time series from stress tests. 9th International Congress on Industrial and Applied Mathematics. Valencia, España, 2019.
- J. A. Zamora-Justo, G. R. Vázquez-Martínez, J. A. Balderas López, A. Muñoz-Diosdado, M.A.A. Ibáñez-Hernández. Cell Uptake Study of Drug and DNA Loaded Gold Nanoparticles. 15th INTERNATIONAL CONFERENCE ON DIFFUSION IN SOLIDS AND LIQUIDS - DSL2019, Atenas Grecia, 2019.
- Sotelo-López, P. Abrica-Gozález, A. Muñoz-Diosdado, J.A. Balderas-López. Cell Viability Study in HEK293 Cells Exposed to Gold Nanoparticles with Chitosan, N-Acylated Chitosan and Chitosan Oligosaccharide. 15th INTERNATIONAL CONFERENCE ON DIFFUSION IN SOLIDS AND LIQUIDS - DSL2019, Atenas Grecia, 2019.
- R.A. Gutiérrez-Calleja, O. Rodríguez-Cortés, R.A. Lezama-Palacios, E. Reyes-Maldonado, A. Muñoz-Diosdado. Effect of Gold Nanoparticles in Colloidal Suspension on Viability and Uptake in Human Mast Cells. 15th INTERNATIONAL CONFERENCE ON DIFFUSION IN SOLIDS AND LIQUIDS - DSL2019, Atenas Grecia, 2019.
- P. Abrica-Gozález, M.A. Ibáñez-Hernández, A. Muñoz-Diosdado, J.A. Balderas-López, A. Sotelo-López. Non-viral Plasmid DNA Carrier with Cationic Modified Polymer-Gold Nanoparticles. 15th INTERNATIONAL CONFERENCE ON DIFFUSION IN SOLIDS AND LIQUIDS - DSL2019, Atenas Grecia, 2019.