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### **SEMBLANZA ACADÉMICA**

Estudió la licenciatura de Químico Industrial, es Maestra y Doctora en Tecnología Avanzada por el Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional (IPN). Es miembro del SNII, nivel I desde el año 2019. En 2017 trabajó como docente en la Universidad del Noreste y en 2018 en la Universidad Juárez Autónoma de Tabasco (UJAT) como profesora investigadora. En el año 2019, se incorporó al Centro Mexicano para la Producción más Limpia (CMPL) del IPN y desde el 2024 labora en la Unidad Profesional Interdisciplinaria de Ingeniería Campus Hidalgo (UPIIH) IPN.

Ha desarrollado temas de polímeros funcionales y redes interpenetradas nanoestructuradas luminiscentes. Actualmente se encuentra formando alumnos de la especialidad de materiales de la carrera de ISISA en UPIIH y de maestría y doctorado en el IPN con temas relacionados a la evaluación de micro- y nanoplásticos, polímeros inteligentes, acústicos y absorbedores de impacto, aplicados a la industria automotriz, materiales con memoria de forma para la



industria del calzado, en la extracción/procesamiento de polímeros a partir de residuos en productos para la industria del plástico y sus evaluaciones de consumos energéticos durante los procesos de transformación (extrusión e inyección).

Sus investigaciones se centran principalmente en la obtención y procesamiento de polímeros obtenidos a base de fuentes convencionales y naturales, así como en la caracterización de sus propiedades estructurales, térmicas, morfológicas, ópticas y mecánicas. Tiene colaboración con instituciones nacionales e internacionales: Tecnológico de México, Tecnológico de Monterrey, UJAT, Loughborough University.

## Artículos

1. Design of a soundproof painting based on microcellulose for potential automotive applications. MRS Advances (2024).  
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2. Degradation features of bioplastics-based disposable straws in soil and aerobic mineralization: Insight into final properties and chemical pathways. Sustainable Chemistry and Pharmacy 37, 101403 (2024).  
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3. Structural and morphological evaluation of three types of carbonate hydrocarbon-bearing rocks from Tampico-Misantla basin: Structural effects after CO<sub>2</sub> injection. MRS Advances 9, 1023 (2024).  
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4. Photocatalytic performance of Nd/TiO and Nb/TiO nanomaterials in the degradation of p-cresol at room temperature. 99, 2509 (2024).  
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5. Development of film nanocomposite membranes from nanocrystalline cellulose combined with reduced graphene oxide or graphene oxide: Evaluation of potential applications in proton exchange membranes. Industrial Crops and Products 207, 117740 (2024).  
<https://doi.org/10.1016/j.indcrop.2023.117740>
6. Structural interactions and tensile properties of sustainable PMMA/PU IPNS incorporated with La<sub>0.7-x</sub>Pr<sub>x</sub>Ca<sub>0.3</sub>MnO<sub>3</sub> perovskite particles. MRS Advances 8, 1419 (2023). <https://doi.org/10.1557/s43580-023-00734-8>
7. Mechanical and thermal evaluation of PLA/PLA-g-MA/MCC composites via reactive extrusion. MRS Advances 8, 1325 (2023).  
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8. CNCs extraction from single-use cups: effects of grafting it onto MMA monomer. *Journal of Chemical Technology & Biotechnology* 98, 1847 (2023). <https://doi.org/10.1002/jctb.7360>
9. Valorization of sawdust biomass for biopolymer extraction via green method: Comparison with conventional process. *International Journal of Energy Research* 46, 20279 (2022). <https://doi.org/10.1002/er.8112>
10. Data that support the use of agro-industrial residues from orange peel and sugarcane bagasse for the production of carbonaceous structures and their application in the removal of metal ions. *Data in Brief* 43, 108410 (2022). <https://doi.org/10.1016/j.dib.2022.108410>
11.  $\text{La}_{0.7-x}\text{Ln}_x\text{Ca}_{0.3}\text{MnO}_3$  ( $\text{Ln}=\text{Pr}$  or  $\text{Sm}$ ) perovskites as electrode materials for SOFCs. *Ceramics International* 48, 21221 (2022). <https://doi.org/10.1016/j.ceramint.2022.04.031>
12. Reutilization of waste biomass from sugarcane bagasse and orange peel to obtain carbon foams: Applications in the metal ions removal. *Science of The Total Environment* 831, 154883 (2022). <https://doi.org/10.1016/j.scitotenv.2022.154883>
13. In Situ Growth of Silver Nanoparticles on Chitosan Matrix for the Synthesis of Hybrid Electrospun Fibers: Analysis of Microstructural and Mechanical Properties, in *Polymers* (2022). <https://doi.org/10.3390/polym14040674>
14. Structural and thermal study of hemicellulose and lignin removal from two types of sawdust to isolate cellulose. *MRS Advances* 7, 49 (2022). <https://doi.org/10.1557/s43580-022-00225-2>
15. Study of cellulose extraction from disposable cups for potential application as a reinforcement of engineering polymers. *MRS Advances* 6, 881 (2021). <https://doi.org/10.1557/s43580-021-00152-8>
16. An assembly strategy of polylactic acid (PLA)- $\text{SiO}_2$  nanocomposites embedded in polypropylene (PP) matrix. *Journal of Materials Research and Technology* 14, 2150 (2021). <https://doi.org/10.1016/j.jmrt.2021.07.063>
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19. Microwave irradiation synthesis to obtain  $\text{La}_{0.7-x}\text{Pr}_x\text{Ca}_{0.3}\text{MnO}_3$  perovskites: Electrical and electrochemical performance. *Journal of Alloys and Compounds* 851, 156882 (2021).  
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20. Studies of Corrosion Resistant Properties of PU Coatings Reinforced with La-Pr-O Nanostructures. *ECS Transactions* 101, 313 (2021).  
<https://doi.org/10.1149/10101.0313ecst>
21. Electrochemical Performance of UHMWPE Biocompatible Coatings on Ti6Al4V Alloy in Simulated Body Solutions: Influence of Immersion Time. *ECS Transactions* 101, 325 (2021). <https://doi.org/10.1149/10101.0325ecst>
22. Structural, thermal and morphological studies of bio-based straws under aerobic degradation process. *MRS Advances* 5, 3113 (2020).  
<https://doi.org/10.1557/adv.2020.377>
23. Energy down-converting  $\text{LaPO}_4$  nanoparticles highly dispersed into poly(lactic acid) electrospun fibers: microstructural and optical properties. *Ceramics International* 46, 25273 (2020).  
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24. Evaluation of the energy driving performance of a cooling system assembled with a Peltier module operated in hot climates at different electrical currents. *IOP Conference Series: Materials Science and Engineering* 958, 012009 (2020). <https://doi.org/10.1088/1757-899X/958/1/012009>
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28. Design Proposal of a Prototype for Sawdust Pellet Manufacturing through Simulation. *Advances in Materials Science and Engineering* 2020, 9565394 (2020). <https://doi.org/10.1155/2020/9565394>
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30. Dataset of the synthesis parameters to deposit YSZ on stainless steel AISI 316L by sputtering technique. Data in Brief 26, 104480 (2019).  
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31. Corrosion investigation of new hybrid organic/inorganic coatings for carbon steel substrates: Electrochemical and surface characterizations. Progress in Organic Coatings 135, 51 (2019).  
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32. Data supporting the morphological/topographical properties and the degradability on PET/PLA and PET/chitosan blends. Data in Brief 25, 104012 (2019). <https://doi.org/10.1016/j.dib.2019.104012>
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34. Functionality of TERGO Powders during the Synthesis of PANI-Based Composites for Electrical Devices. Journal of Nanomaterials 2019, 2872460 (2019). <https://doi.org/10.1155/2019/2872460>
35. Experimental data in support of characterization of the CePO<sub>4</sub> dispersion into transparent PMMA/PU IPNs by the sequential route. Data in Brief 21, 2350 (2018). <https://doi.org/10.1016/j.dib.2018.11.057>
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38. Effect of CePO<sub>4</sub> nanostructures in transparent PMMA/castor-oil based PU IPNs on thermal stability, optical and mechanical properties. Journal of Polymer Research 24, 136 (2017). <https://doi.org/10.1007/s10965-017-1294-4>
39. Morphological and Mechanical Properties Dependence of PLA Amount in PET Matrix Processed by Single-Screw Extrusion. Polymer-Plastics Technology and Engineering 55, 672 (2016).  
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<https://doi.org/10.1016/j.jallcom.2014.12.053>
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### Proyectos

- Proyecto SIP20241380 individual “Aprovechamiento de biopolímeros a partir de subproductos del Aloe Vera”
- Proyecto SIP20241126 y 20232831 innovación “Desarrollo de un nuevo material transparente a base de polímeros de base biológica a base de desechos de vasos café”.
- Proyecto SIP20221111 y 20212070 innovación “Escalamiento de la extracción de microcelulosa proveniente de residuos agroindustriales, como materia prima para el procesamiento de bioplásticos”
- Proyecto multidisciplinario SIP20210693, 20220672 Y 20230843 “Reforzamiento de IPNs con materiales tipo perovskita obtenidas por métodos convencionales y no convencionales para la producción de recubrimientos orgánicos híbridos: evaluación en el control de la degradación”
- Proyecto SIP20202443 individual. Producción sustentable de polímeros de base biológica nanoestructurados.
- Proyecto SIP20196810 y SIP20200909 Innovación "Estudio de procesamiento y degradación aeróbica, anaeróbica e intemperismo acelerado de mezclas de plásticos base PET modificados con biopolímeros de ácido poliláctico (PLA).
- Proyecto SIP20220548, 20210184 y 20200752 “Innovación tecnológica en los procesos de producción de la industria del aserrío, del estado de Durango México: Producción de envases de plástico a base de polímeros de base biológica a partir de la modificación química de la biomasa de aserrín”.