

## Oscar Paredes Mellone

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### Publications

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#### PUBLICATIONS

- **Deciphering decomposition pathways of high explosives with cryogenic X-ray Raman spectroscopy.** *Proceedings of the National Academy of Sciences of the United States of America*  
Paredes Mellone, O. A., Nielsen, M. H., Babicz, J. T., Vinson, J., Willey, T. M., Sokaras, D.  
2025; 122 (23): e2426320122
- **Reaction Mechanism of the Synthesis of a Disordered Rock Salt Cathode Material** *CHEMISTRY OF MATERIALS*  
Liang, Z., Marques, O., Mellone, O., Masina, S. M., Cao, C. L., Sokaras, D., Weker, J., Stone, K. H.  
2025
- **Platinum hydride formation during cathodic corrosion in aqueous solutions.** *Nature materials*  
Hersbach, T. J., Garcia-Esparza, A. T., Hanselman, S., Paredes Mellone, O. A., Hoogenboom, T., McCrum, I. T., Anastasiadou, D., Feaster, J. T., Jaramillo, T. F., Vinson, J., Kroll, T., Garcia, A. C., Krttil, et al  
2025
- **Tracking Active Phase Behavior on Boron Nitride during the Oxidative Dehydrogenation of Propane Using Operando X-ray Raman Spectroscopy.** *Journal of the American Chemical Society*  
Cendejas, M. C., Paredes Mellone, O. A., Kurumbail, U., Zhang, Z., Jansen, J. H., Ibrahim, F., Dong, S., Vinson, J., Alexandrova, A. N., Sokaras, D., Bare, S. R., Hermans, I.  
2023
- **The Local Electronic Structure of Supercritical CO<sub>2</sub> from X-ray Raman Spectroscopy and Atomistic-Scale Modeling.** *The journal of physical chemistry letters*  
Muhunthan, P., Paredes Mellone, O., Kroll, T., Sokaras, D., Ihme, M.  
2023: 4955-4961
- **Investigating the electronic structure of high explosives with X-ray Raman spectroscopy.** *Scientific reports*  
Paredes-Mellone, O. A., Nielsen, M. H., Vinson, J., Moua, K., Skoien, K. D., Sokaras, D., Willey, T. M.  
2022; 12 (1): 19460
- **Local Structure of Sulfur Vacancies on the Basal Plane of Monolayer MoS<sub>2</sub>.** *ACS nano*  
Garcia-Esparza, A. T., Park, S., Abroshan, H., Paredes Mellone, O. A., Vinson, J., Abraham, B., Kim, T. R., Nordlund, D., Gallo, A., Alonso-Mori, R., Zheng, X., Sokaras, D.  
2022
- **X-ray spectroscopic identification of strain and structure-based resonances in a series of saturated carbon-cage molecules: Adamantane, twistane, octahedrane, and cubane** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*  
Willey, T. M., Lee, J. R., Brehmer, D., Mellone, O., Landt, L., Schreiner, P. R., Fokin, A. A., Tkachenko, B. A., de Meijere, A., Kozhushkov, S., van Buuren, A. W.  
2021; 39 (5)
- **Dynamic Structure Factor and Dielectric Function of Valence Electrons in Lithium Hydride: An Inelastic X-Ray Scattering Study at Finite Momentum Transfer** *PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS*  
Paredes-Mellone, O. A., Koskelo, J., Ceppi, S. A., Stutz, G. E.  
2020; 257 (6)
- **Li 1s core exciton in LiH studied by x-ray Raman scattering spectroscopy** *JOURNAL OF PHYSICS-CONDENSED MATTER*  
Paredes-Mellone, O. A., Stutz, G. E., Ceppi, S. A., Arneodo Larochette, P., Huotari, S., Gilmore, K.

2019; 31 (5): 055501

- **Background radiation in inelastic X-ray scattering and X-ray emission spectroscopy. A study for Johann-type spectrometers** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*

Paredes Mellone, O. A., Bianco, L. M., Ceppi, S. A., Goncalves Honnicke, M., Stutz, G. E.  
2018; 894: 119-128