



Perla Balbuena

Texas A&M University

- Professor
- Holder of the GPSA Professorship
- TEES Eminent Professor

Artículos publicados 328

Total citations 10537

h-index 51

Educational Background

- Ph.D., University of Texas at Austin, 1996
- M.S.E., University of Pennsylvania, 1983
- B.S., Universidad Tecnológica Nacional, Argentina, 1973

Research Interests

- Catalysis on metal nanoparticles for fuel cell electrocatalysts
- Catalyzed growth of single-walled carbon nanotubes

- Gas separation and storage in metal organic frameworks
- Solid-electrolyte interphase layer nucleation and growth in Si and carbon anodes of Li-ion batteries
- Materials for photocatalysis: Oxygen evolution in doped oxides
- Materials for solar cells and hydrogen production: Hydrogen evolution on coated semiconductors covered by co-catalysts
- Shale gas thermodynamics: Phase behavior of hydrocarbon + water mixtures in confined media
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Awards & Honors

- NSF/POWRE award, 1997
- NSF/CAREER award, 1999
- GPSA Professorship, 2005
- AAAS Fellow, 2013
- TEES Senior Fellow, 2013

Articles in press

1. Behnaz Rahmani Didar and Perla B. Balbuena, "Methane Dehydrogenation on Cu and Ni Surfaces with Low and Moderate Oxygen Coverage," *Int. J. Quantum Chemistry*, *in press*.

2. Yu Zheng, Fernando A. Soto, Victor Ponce, Jorge M. Seminario, Xia Cao, Ji-Guang Zhang, and Perla B. Balbuena, "Localized High Concentration Electrolyte Behavior near a Lithium-Metal Anode Surface," *J. Mater. Chem. A*, *in press*.

Published Articles (Last year)

304. Behnaz Rahmani Didar and Perla B. Balbuena, "Reactivity of Cu and Co Nanoparticles Supported on Mo-doped MgO," *Ind. & Eng. Chem. Res.*, **58**, 18213-18222, (2019).

303. Qin, Xueping; Zhang, Lulu; Xu, Guiliang; Wang, Qi; Gu, Meng; Zhang, Xiaoyi; Sun, Chengjun; Balbuena, Perla; Amine, Khalil; Shao, Minhua, "The Role of Ru in Improving the Activity of Pd toward Hydrogen Evolution and Oxidation Reactions in Alkaline Solutions," *ACS Catalysis*, **9**, 9614-9621, (2019).

302. Ethan P. Kamphaus, Stefany Angarita-Gomez, Xueping Qin, Minhua Shao, Mark Engelhard, Karl T. Mueller, Vijayakumar Murugesan, and Perla B. Balbuena, "Role of

inorganic surface layer on solid electrolyte interphase evolution at Li-metal anodes," *ACS Appl. Mater. Interfaces*, 11, 31467-31476, (2019).

301. R. Bernaola-Flores, D. Silva-Quiñones, P. B. Balbuena, J. C. F. Rodríguez-Reyes, F. Tarazona-Vasquez, "Atomic scale study of silver sulphide leaching with cyanide and thiourea," *Physicochem. Probl. Miner. Process.*, 55(4):969–980, (2019).

300. Qin, Xueping; Balbuena, Perla; Shao, Minhua, "First-Principles Study on the Initial Oxidative Decompositions of Ethylene Carbonate on Layered Cathode Surfaces of Lithium Ion Batteries," *J. Phys. Chem. C*, 123, 14449-14458, (2019).

299. C. Ardila-Suárez, A. M. Díaz- Lasprilla, L. A. Díaz- Vaca, P. B. Balbuena, V. G. Baldovino-Medrano, and G. E. Ramírez-Caballero, "Synthesis, Characterization, and Post-Synthetic Modification of a Micro/Mesoporous Zirconium-Tricarboxylate Metal-Organic Framework: Towards the Addition of Acid Active Sites", *Crystal Eng. Comm.*, 21, 3014-3030, (2019).

298. Soto, F. A., Bernaola-Flores, R., Rodríguez-Reyes, J. C. , Balbuena, P. B., Tarazona-Vasquez, F., "Atomistic Simulations of the Reactivity of Acanthite Facets toward Cyanidation," *J. Phys. Chem. C, J. Phys. Chem. C*, 123, 11888-11898, (2019).

297. Ethan P. Kamphaus and Perla B. Balbuena, "Effects of Dimethyl Disulfide Cosolvent on Li-S Battery Chemistry and Performance," *Chem. Mater.*, 31, 2377-2389, (2019).

296. S. Sharifi-Asl, F. A. Soto, Y. Yuan, T. Foroozan, P. Abbasi, R. Deivanayagam, R. Rojaee, B. Song, A. Salehi-khojin, K. Amine, J. Lu, P. B. Balbuena, R. Shahbazian-Yassar, "Anti-Oxygen Leaking LiCoO₂," *Adv. Funct. Mater.*, 1901110, (2019).

295. F. Hao, Z. Liu, P. B. Balbuena, P. P. Mukherjee, "Mesoscale Elucidation of Self-Discharge Induced Performance Decay in Lithium-Sulfur Batteries," *ACS Appl. Mater. Interfaces*, 11, 13326-13333, (2019).

294. Roberto C. Longo, Luis E. Camacho-Forero, and Perla B. Balbuena, "Charge-Mediated Cation Deposition on Metallic Surfaces," *J. Mater. Chem. A*, 7, 8527-8539, (2019).

293. D. E. Galvez-Aranda, A. Varma, K. Hankins, J. M. Seminario, P. P. Mukherjee, and P. B. Balbuena, "Chemical and Mechanical Degradation and Mitigation Strategies for Si Anodes", *J. Power Sources*, 419, 208-218, (2019).