

Barbara Lafuente

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Education

PhD, Geosciences. University of Arizona, Tucson, AZ, USA. Advisor: Robert T. Downs. 2016
Bachelor Business Administration. University of Valladolid, Valladolid, Spain. 2010
MS Chemical Engineering. University of Valladolid, Valladolid, Spain. 2005

Experience

11/2018 – Present: Research Scientist. SETI Institute.
11/2016 – 10/2018: NASA Postdoctoral Program (NPP) Fellow. NAI Program. USRA. NASA ARC.
01/2013 – 10/2016: Research Assistant, PhD student. Geosciences, University of Arizona, Tucson AZ.
09/2011 – 06/2012: Research Scientist. Astrobiology Center, CAB-INTA, Madrid, Spain.
02/2009 – 07/2011: Process Engineer. Queserías Entrepinares, Valladolid, Spain.
07/2007 – 01/2009: Research Scientist. PETRI Program. CAB-INTA, Madrid, Spain.
01/2007 – 07/2007: Research Chemist. Dept. of Chemical Engineering, University of Valladolid, Spain.
10/2005 – 12/2006: Research Chemist - Marie Curie Host Fellowship. University of Trieste, Italy.

Publications

Selected Journal Publications:

- Lafuente, B.**, Downs, R. T., Yang, H., Jenkins, R. A. (2014). Calcioferrite with composition $(\text{Ca}_{3.94}\text{Sr}_{0.06})\text{Mg}_{1.01}(\text{Fe}_{2.93}\text{Al}_{1.07})(\text{PO}_4)_6(\text{OH})_4 \cdot 12\text{H}_2\text{O}$. *Acta Crystallographica*, E70, 116-117.
- Lafuente, B.**, Downs, R. T., Yang, H. (2015). Crystal structure of tetrawickmanite $\text{Mn}^{2+}\text{Sn}^{4+}(\text{OH})_6$. *Acta Crystallographica*, E71, 234-237.
- Lafuente, B.**, Downs, R. T., Yang, H., Stone, N. (2015) The power of databases: the RRUFF project. In: *Highlights in Mineralogical Crystallography*, Armbruster, T. and Danisi, R. M., eds. Berlin, Germany, W. De Gruyter, pp-1-30.
- Peterson, R. C., Farber, G., Groat, L., Evans, R. J., Joy, B., MacNeil, L., **Lafuente, B.**, Witzke, T. (2016) Meierite, a new barium mineral with a KFI-type zeolite framework from the Gun Claim, Yukon Canada. *The Canadian Mineralogist* 54, 1249-1259
- Andronikov, A. V., Andronikova, I. E., Loehn, C. W., **Lafuente, B.**, Ballenger, J. A. M., Crawford, G. T., Lauretta, D. S. (2016) Implications from chemical, structural and mineralogical studies of magnetic microspherules from around the lower Younger Dryas boundary (New Mexico, USA). *Geografiska Annaler: Series A, Physical Geography*, 98, 1–21.
- Lafuente, B.**, Downs, R. T. (2016). Redetermination of brackebuschite $\text{Pb}_2\text{Mn}^{3+}(\text{VO}_4)_2(\text{OH})$. *Acta Crystallographica*, E72, 293-296.
- Fenton, L.K., Bishop, J.L., King, S., **Lafuente, B.**, Horgan, B., Bustos, D., Sarrazin, P. (2016) Sedimentary differentiation of aeolian grains at the White Sands National Monument, New Mexico, USA. *Aeolian Research*, 26, 117-136. doi: 10.1016/j.aeolia.2016.05.001.
- Lafuente, B.**, Downs, R. T., Origlieri, M. J., Domanik, K. J., Gibbs, R. B., Rumsey, M. S. (2017) New data on hemihedrite from Arizona. *Mineralogical Magazine*, 81, 1021-1030. doi: 10.1180/minmag.2016.080.148.
- Shannon, R. C., **Lafuente, B.**, Shannon, R. D., Downs, R. T., Fisher, R. X. (2017) Refractive Indices of minerals and synthetic compounds. *American Mineralogist*, 102, 1906-1914. <https://doi.org/10.2138/am-2017-6144>
- Rampe, E. B., Blake, D. F., Bristow, T. F., Ming, D. W., Vaniman, D. T., Morris, R. W., [...], Lafuente, B., et al (Submitted) Mineralogy and geochemistry of sedimentary rocks and eolian sediments in Gale crater, Mars: A review after six Earth years of exploration with Curiosity. *Geochemistry*

Selected Meeting Abstracts:

- Lafuente, B.**, Navarro, R., Sansano, A., Rull, F. (2012). Surface-Enhanced Raman Spectroscopy (SERS) for identifying traces adenine in different mineral and rock samples. EPSC - European Planetary Science Congress, September 2012, Madrid (Spain), AB3 Astrobiology, abstract #904.
- Lafuente, B.**, Rull, F., Sansano, A., Navarro, R., Lopez, G., Catalá, A., Sobron, P. (2012). Multivariate analysis of Raman spectra for geological classification and identification: Application to Exomars Mission. *GeoRaman 10th*, 11-13 June, Nancy (France).
- Lafuente, B.**, Bishop, J. L., Fenton, L. K., King, S. J., Blake, D., Sarrazin, P., Downs, R. T., Horgan, B. H., Garcia, G. C. (2014). Mineralogical characterization by XRD of Gypsum Dunes at White Sands National Monument and application

to Gypsum detection on Mars. 45th Lunar and Planetary Science conference, 17-21 March, Houston, TX, T629, abstract #2578.

- Lafuente, B.**, Stone, N., Downs, R. T., Blake, D., Bristow, T., Fonda, M., Pires, A. (2015). The Astrobiology Habitable Environments Database (AHED). AbSciCon 2015. Chicago, IL, 15-19 June, abstract #7256.
- Lafuente, B.**, Bristow, T., Stone, N., Pires, A., Keller, R. M., Downs, R. T., Blake, D., Fonda, M., Dateo, C. (2017). Data sharing in Astrobiology: The Astrobiology Habitable Environments Database (AHED). 48th Lunar and Planetary Science conference, 20-24 March, Houston, TX, T629, abstract #2943.
- Lafuente, B.**, Bristow, T., Stone, N., Pires, A., Keller, R. M., Downs, R. T., Blake, D., Fonda, M., Dateo, C. (2017). Data sharing in Astrobiology: The Astrobiology Habitable Environments Database (AHED). AbSciCon 2017. Mesa, AZ, 24-28 April, abstract #3623.
- Lafuente, B.**, Stone, N., Bristow, T., Keller, R. M., Blake, D., Downs, R. T., Pires, A., Dateo, C., Fonda, M. (2017) Data Collection, Collaboration, Analysis, and Publication Using the Open Data Repository's (ODR) Data Publisher. AGU Fall Meeting. New Orleans, LA, 11-15 December, abstract #0742.
- Lafuente, B.**, Hays, L., Hoehler, T., Pohorille, A., CLD team (2018). Center for Life Detection Science. 4D Workshop for Deep-Time Data Driven Discovery, Carnegie Institution for Science, Washington, DC, June 2018.
- Lafuente, B.**, Stone, N., Bristow, T., Blake, D., Downs, R. T., Pires, A. (2018). Collaborative data publication utilizing the Open Data Repository's Data Publisher. 42nd Cospar Assembly. Pasadena, CA, 14-22 July, abstract # S.2-0007-18 .
- Lafuente, B.**, Stone, N., Bristow, T., Blake, D., Pires, A., Downs, R. T., Dateo, C., Fonda, M. (2018) The Open Data Repository's (ODR) Data Publisher. AGU Fall Meeting. Washington, D.C., 10-14 December, abstract #0653.

Honors and awards

- Marie Curie Host Fellowship for Early Stage Research Training (2005)
- ChevronTexaco Geology Fellowship (2013, 2014 and 2015)
- Tucson Gem and Mineral Society Scholarship (2014)
- Galileo Circle Scholarship (2015)
- Mars Student Travel Grant by Mars Exploration Program at NASA Headquarters to attend the Astrobiology Science Conference, Chicago, IL, USA (2015)
- NAI Scholarship for Josep Comas i Solà International Summer School in Astrobiology, Santander, Spain (2015)
- GSA Research Grant 2016: Evaluating the crystallographic effects of radiation dosage accumulation in baddeleyite (monoclinic ZrO₂): implications for high-accuracy U-Pb geochronology.