

## Roger Wiens Publications

### Peer-Reviewed, 2020 to Mid-2022

198. Wiens R.C., Wan X., Lasue J., and Maurice S. (2020) Laser Induced Breakdown Spectroscopy for Planetary Science. In Laser-Induced Breakdown Spectroscopy, 2nd edition, J.P. Singh and S.N. Thakur, eds. Elsevier, pp. 441-471.
199. Wiens R.C., Edgett K.S., Stack K.M., Dietrich W.E., Bryk A.B., Mangold N., Bedford C.C., Gasda P., Fairen A., Thompson L., Johnson J.R., Gasnault O., Clegg C., Cousin A., Forni O., Frydenvang J., Lanza N., Maurice S., Newsom H., Ollila A., Payre V., Rivera-Hernandez F., and Vasavada A. (2020) Origin and composition of three heterolithic boulder- and cobble-bearing deposits overlying the Murray and Stimson formations, Gale crater, Mars. *Icarus* 350, 113897.
200. Czarnecki S., Hardgrove C., Gasda P., Calef F., Gengl H., Rapin W., Frydenvang J., Nowicki S., Thompson L., Wiens R.C., Newsom H., Gabriel T. (2020) Constraints on the hydration and distribution of high-silica layers in Gale crater using LIBS geochemistry and active neutron measurements. *JGR Planets*, doi: 10.1029/2019JE006180.
201. Bedford C., Schwenger S., Bridges J.C., Banham S., Wiens R.C., Frydenvang J., Gasnault O., Rampe E.B., and Gasda P.J. (2020) Geochemical variation in the Stimson formation: Provenance, mineral sorting, and a comparison with modern Martian dunes. *Icarus* 341, doi:10.1016/j.icarus.2020.113622.
202. Rivera-Hernandez F., Sumner D.Y., Mangold N., Banham S.G., Edgett K., Fedo C., Gupta S., Gwizd S., Heydari E., Maurice S., Nachon M., Newsom H., Schieber J., Stack-Morgan K., Stein N., Wiens R.C. (2020) Grain Size Variations in the Murray Formation: Stratigraphic Evidence for Changing Depositional Environments in Gale Crater, Mars. *J. Geophys. Res. Planets* doi:10.1029/2019JE006230
203. Martin P., Ehlmann B.L., Thomas N.H., Wiens R.C., Hollis J.J.R., Beegle L.W., Bhartia R., Clegg S.M., and Blaney D.L. (2020) Studies of a Lacustrine-Volcanic Mars Analog Field Site with Mars-2020-like Instruments. *Earth and Space Science* 7, doi:10.1029/2019EA000720.
204. Rampe E.B., Blake D.F., Bristow T.F., Ming D.W., Bridges J., Castle N., Edgar L., Fedo C., Freissinet C., Grotzinger J., Mahaffy P., Newsom H., Johnson J., Kah L., Siebach K., Schieber J., Sun V., Vasavada A., Webster C., Wellington D., and Wiens R.C. (2020) Mineralogy and geochemistry of sedimentary rocks and eolian sediments in Gale crater, Mars: A review after six Earth years of exploration with Curiosity. *Phys. Chem. Erde*, doi: 10.1016/j.chemer.2020.125605.
205. Jurewicz A.J.G., Rieck K.D., Hervig R., Burnett D.S., Wadhwa M., Wiens R.C., Laming J.M., Guan Y., Huss G.R., Williams P. (2020) The Mg isotopic composition

of the bulk solar wind from Genesis DoS collectors. *Met. Planet. Sci.* 55, 352-375, doi:10.1111/maps.13439.

206. Carrier B.L., Beaty D.W., Meyer M.A., Blank J.G., Chou L., DasSarma S., Des Marais D.J., Eigenbrode J.L., Grefenstette N., Lanza N.L., Schuerger A.C., Schwendner P., Smith H.D., Stoker C.R., Tarnas J.D., Webster K.D., Bakermans C., Baxter B.K., Bell M.S., Benner S.A., Bolivar Torres H.H., Boston P.J., Bruner R., Clark B.C., DasSarma P., Engelhart A.E., Gallegos Z.E., Garvin Z.K., Gasda P.J., Green J.H., Harris R.L., Hoffman M.E., Kieft T., Koepfel A.H.D., Lee P.A., Li X., Lynch K.L., Mackelprang R., Mahaffy P.R., Matthies L.H., Nellesen M.A., Newsom H.E., Northup D.E., O'Connor B.R.W., Perl S.M., Quinn R.C., Rowe L.A., Sauterey B., Schneegurt M.A., Schulze-Makuch D., Scuderi L.A., Spilde M.N., Samenkovic V., Torres Celis J.A., Viola D., Wade B.D., Walker C.J., Wiens R.C., Williams A.J., Williams J.M., and Xu J. (2020) Mars Extant Life: What's Next? Conference report. *Astrobio.* 20, doi:10.1089/ast.2020.2237.
207. Lanza N.L., Wiens R.C., Maurice S., and Johnson J.R. (2020) Elemental Analyses of Mars with LIBS by ChemCam and SuperCam. In *Remote Compositional Analysis: Techniques for Understanding Spectroscopy, Mineralogy, and Geochemistry of Planetary Surfaces*, Eds: Janice L. Bishop, Jeffrey Moersch, and James F. Bell, III, Cambridge University Press, p. 573-587.
208. Ewusi-Annan E., Delapp D.M., Wiens R.C., and Melikechi N. (2020) Automatic preprocessing of laser-induced breakdown spectra using partial least square regression and feedforward artificial neural network: Applications to Earth and Mars Data. *Spectrochim. Acta* 171, 105930, doi:10.1016/j.sab.2020.105930.
209. Thomas N.H., Ehlmann B.L., Rapin W., Rivera-Hernandez F., Stein N.T., Frydenvang J., Gabriel T., Meslin P.-Y., Maurice S., and Wiens R.C. (2020) Hydrogen variability in the Murray formation, Gale crater, Mars. *J. Geophys. Res. Planets* 125, e2019JE006289, doi:10.1029/2019JE006289.
210. Das D., Gasda P.J., Wiens R.C., Berlo K., Leveille R.J., Frydenvang J., Mangold N., Kronyak R., Schwenzer S., Forni O., Cousin A., Maurice S., and Gasnault O. (2020) Measurement of boron on Vera Rubin Ridge, Gale crater. *J. Geophys. Res. Planets* 125, e2019JE006301, doi:10.1029/2019JE006301.
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- VanBommel S., Wiens R.C., Williams R., and Yingst R. (2020) Extraformational sediment recycling on Mars. *Geosphere* 16, <https://doi.org/10.1130/GES02244.1>.
213. David G., Cousin A., Forni O., Meslin P.-Y., Dehouck E., Mangold N., L'Haridon J., Rapin W., Gasnault O., Johnson J.R., Ollila A.M., Newell A.R., Wiens R.C., Maurice S., and Salvatore M. (2020) Analyses of high-iron sedimentary bedrock and diagenetic features observed with ChemCam at Vera Rubin ridge, Gale crater, Mars: calibration and characterization. *JGR Planets* 125, e2019JE006314, <https://doi.org/10.1029/2019JE006314>.
214. Jacob S.R., Wellington D.F., Bell J.F. III, Achilles C., Fraeman A.A., Horgan B., Johnson J.R., Maurice S., Peters G.H., Rampe E.B., Thompson L.M., and Wiens R.C. (2020) Spectral, compositional, and physical properties of the upper Murray formation and Vera Rubin ridge, Gale crater, Mars. *JGR Planets*, 125, e2019JE006290, <https://doi.org/10.1029/2019JE006290>.
215. L'Haridon J., Mangold N., Cousin A., Johnson J.R., Fraeman A.A., Rapin W., Frydenvang J., Sun V., Forni O., Meslin P.-Y., Gasnault O., Maurice S., Wiens R.C. (2020) Iron mobility during diagenesis as observed by ChemCam at Gale crater, Mars. *J. Geophys. Res. Planets* 125, e2019JE006299. <https://doi.org/10.1029/2019JE006299>.
216. Chide B., Murdoch N., Bury Y., Maurice S., Jacob X., Merrison J.P., Iverson J.J., Meslin P.-Y., Bassas-Portus M., Cadu A., Sournac A., Dubois B., Lorenz R.D., Mimoun D., and Wiens R.C. (2021) Experimental wind characterization with the SuperCam microphone under simulated Martian atmosphere. *Icarus* 354, <https://doi.org/10.1016/j.icarus.2020.114060>.
217. Chide B., Maurice S., Cousin A., Bousquet B., Mimoun D., Beyssac O., Meslin P.-Y., Wiens R.C. (2020) Recording laser-induced sparks on Mars with the SuperCam microphone. *Spectrochim. Acta B* 174, <https://doi.org/10.1016/j.sab.2020.106000>.
218. Manrique J.A., Lopez-Reyes G., Cousin A., Rull F., Maurice S., Wiens R.C., Madsen M.B., Madariaga J.M., Gasnault O., Aramendia J., Arana G., Beck P., Bernard S., Bernardi P., Bernt M.H., Beyssac O., Cais P., Castro C., Castro K., Clegg S., Cloutis E., Dromart G., Drouet C., Dubois B., Fabre C., Fernandez A., Garcia-Baonza V., Gontijo I., Johnson J., Laserna J., Lasue J., Madsen S., Mateo-Marti E., Medina J., Meslin P.-Y., Montagnac G., Moros J., Ollila A.M., Ortega C., Prieto-Ballesteros O., Reess J.M., Robinson S., Rodriguez J., Saiz J., Sanz J.A., Sard I., Sautter V., Sobron P., Veneranda M. (2020) SuperCam calibration targets: Design and development. *Spa. Sci. Rev.*, 216, 138, <https://doi.org/10.1007/s11214-020-00764-w>.
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221. Fraeman A.A., Arvidson R.E., Horgan B.H., Jacob S.R., Johnson J.R., Sun V.Z., Wellington D.F., Fox V.K., Morris R.V., Rice M.S., Salvatore M.R., Bell J.F. III, Pinet P., Wiens R.C., Vasavada A. (2020) Synergistic ground and orbital observations of iron oxides on Mt. Sharp and Vera Rubin Ridge. *J. Geophys. Res. Planets* 125, e2020JE006527. <https://doi.org/10.1029/2020JE006527>.
222. Fraeman A.A., Edgar L.A., Rampe E.B., Thompson L.M., Frydenvang J., Fedo C.M., Catalano J.G., Dietrich W.E., Gabriel T.S.J., Grotzinger J.P., L'Haridon J., Mangold N., Sun V.Z., House C.H., Bryk A., Hardgrove C., Czarnecki S., Stack K.M., Vasavada A.R., Morris R.V., Arvidson R.E., Banham S.G., Bennett K.A., Bridges J.C., Edwards C.S., Fischer W.W., Fox V.K., Gupta S., Horgan B.H.N., Jacob S.R., Johnson J.R., Johnson S.S., Rubin D.M., Salvatore M.R., Schwenzer S.P., Siebach K.L., Stein N.T., Turner S., Wellington D.F., Wiens R.C., Williams A.J., and Wong G.M. (2020) The origin of Vera Rubin ridge, Gale crater, Mars: Summary and synthesis of Curiosity's exploration campaign. *J. Geophys. Res. Planets* 125, e2019JE006294. <https://doi.org/10.1029/2019JE006294>.
223. Wiens R.C., Maurice S., Robinson S.H., Nelson A.E., Cais P., Bernardi P., Newell R.T., Clegg S.M., Sharma S.K., Storms S., Deming J., Beckman D., Ollila A.M., Gasnault O., Auden E., Anderson R.B., André Y., Angel S.M., Arana G., Beck P., Becker J., Benzerara K., Bernard S., Beyssac O., Borges L., Bousquet B., Boyd K., Caffrey M., Carlson J., Castro K., Celis J., Chide B., Clark K., Cloutis E., Cordoba E.C., Cousin A., Dale M., Deflores L., Delapp D., Deleuze M., Dirmyer M., Donny C., Dromart G., Duran M.G., Egan M., Ervin J., Fabre C., Fau A., Fischer W.W., Forni O., Fouchet T., Fresquez R., Frydenvang J., Gasway D., Gontijo I., Grotzinger J., Jacob X., Jacquiod S., Johnson J.R., Klisiewicz R.A., Lake J., Lanza N., Laserna J., Lasue J., Le Mouelic S., Legett C. IV, Leveille R., Lewin E., Lorenz R., Lorigny E., Love S.P., Lucero B., Madariaga J.M., Madsen M., Madsen S., Mangold N., Manrique J.A., Martinez J.P., Martinez-Frias J., McCabe K.P., McConnochie T.H., McGlown J.M., McLennan S.M., Melikechi N., Meslin P.-Y., Michel J.M., Mimoun D., Misra A., Montagnac G., Montmessin F., Mousset V., Murdoch N., Newsom H., Ott L.A., Ousnamer Z.R., Pares L., Parot Y., Pawluczyk R., Peterson C.G., Pilleri P., Pinet P., Pont G., Poulet F., Provost C., Quertier B., Quinn H., Rapin W., Reess J.-M., Regan A.H., Reyes-Newell A.L., Romano P.J., Royer C., Rull F., Sandoval B., Sarrao J.H., Sautter V., Schoppers M.J., Schroeder S., Seitz D., Shepherd T., Sobron P.,

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224. Clavé E. Gaft M., Motto-Ros Vincent, Fabre C., Forni O., Beyssac O., Maurice S., Wiens R.C., and Bousquet B. (2021) Extending the potential of Plasma Induced Luminescence spectroscopy, *Spectrochim. Acta B* 177, 106111, <https://doi.org/10.1016/j.sab.2021.106111>.
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226. Gasda P.J., Wiens R.C., Reyes-Newell A., Ganguly K., Newell R.T., Sandoval B., Ott L., Adikari S., Voit S., Clegg S.M., Misra A.K., Acosta-Maeda T.E., Quinn H., Sharma S.K., Dale M., Love S.P., and Maurice S. (2021) OrganiCam: A lightweight time-resolved laser-induced imager and Raman spectrometer for planetary organic material characterization. *Appl. Optics* 60, 3753, 1559-128X/21/133753-11.
227. Maurice S., Wiens R.C., Bernardi P., Cais P., Robinson S., Nelson T., Gasnault O., Reess J.-M., Deleuze M., Rull F., Manrique J.-A., Abbaki S., Anderson R.B., André Y., Angel S.M., Arana G., Battault T., Beck P., Benzerara K., Bernard S., Beyssac O., Bonafous M., Bousquet B., Boutillier M., Cadu A., Castro K., Chapron F., Chide B., Clark K., Clegg S., Cloutis E., Collin C., Cordoba E.C., Cousin A., Dameury J.-C., D’Anna W., Daydou P., Deflores L., Dehouck E., Delapp D., De Los Santos G., Donny C., Dromart G., Dubois B., Dufour A., Dupieux M., Egan M., Ervin J., Fabre C., Fau A., Fischer W., Forni O., Fouchet T., Frydenvang J., Gauffre S., Gauthier M., Gharakanian V., Gilard O., Gontijo I., Gonzales R., Granena D., Grotzinger J., Khodja R.H., Heim M., Hello Y., Hervet G., Humeau O., Jacob X., Jacquino S., Johnson J.R., Kouach D., Lacombe G., Lanza N., Lapauw L., Laserna J., Lasue J., Le Deit L., Le Mouelic S., Lecomte E., Lee Q.-M., Legett C. IV, Leveille R., Lewin E., Lorenz R., Lucero B., Madariaga J.M., Madsen S., Madsen M., Mangold N., Manni F., Mariscal J.-F., Martinez-Frias J., Mathieu K., Mathon R., McCabe K.P., McConnochie T., McLennan S., Mekki J., Melikechi N., Meslin P.-Y., Michau Y., Michel Y., Michel J.M., Mimoun D., Misra A., Motagnac G., Montaron C., Montmessin F., Mousset V., Morizet Y., Murdoch N., Newell R.T., Newsom H., Nguyen Tuong N., Ollila A.M., Orttner G., oudda L., Pares L., Parisot J., Parot Y., Perez R., Pheav D., Picot L., Pilleri P., Pilorget C., Pinet P., Pont G., Poulet F., Quantin-Nataf C., Quertier B., Rambaud D., Rapin W., Roucayrol L., Royer C., Ruellan M., Sandoval B.F., Sautter V., Schoppers M.J., Schroeder S., Seran H.-C., Sharma S.K., Sobron P., Sodki M., Sournac A., Sridhar V., Standarovski D., Storms S., Streibig N., Tatat M., Toplis M., Torre-Fdez I., Toulemont N., Velasco C., Venhaus D., Virmontois C, Viso M., Willis P., Wong K.W. (2021) The SuperCam

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