**Christopher H. Kremer – Curriculum Vitae  
Updated: February 8, 2021**

**Education**

**Ph.D.** in Earth, Environmental & Planetary Sciences, Brown University, 2022 (anticipated). *Advisers: Drs. John F. Mustard and Carlé M. Pieters***M.S.** in Earth, Environmental & Planetary Sciences, Brown University 2019  
**M.S.** in Geological & Environmental Sciences, Stanford University 2017  
**B.S.** in Geological & Environmental Sciences, Stanford University, with honors and distinction, minor in History, 2015

**Honors**

Future Investigator in NASA Earth and Space Science and Technology, 2020  
Sigma Xi, 2020  
LPI Career Development Award, 2020  
Tisch Foundation Fellowship, Brown University, 2018  
Chancellor Tisch Fellowship, Brown University, 2017  
Certificate for Outstanding Mentoring, Stanford University, 2016  
Phi Beta Kappa, Stanford University, 2015  
Stanford Deans’ Award for Academic Achievement (9 in class of ~1700), 2015  
Stanford School of Earth Sciences Dean’s Award for Undergraduate Academic Achievement, 2015  
Stanford Department of Geological Sciences Outstanding Senior Award, 2015  
AIPG National Undergraduate Scholarship, 2015  
Stanford President’s Award for Academic Excellence (98th percentile of class), 2012

**Peer-Reviewed Publications**

**C.H. Kremer**, J.F. Mustard, C.M. Pieters. Cross-over infrared spectroscopy: A new tool for the remote determination of olivine composition. Geophysical Research Letters 47, <https://doi.org/10.1029/2020GL089151>.  
  
Z.F.M. Burton, T. McHargue, T. Kukla, **C.H. Kremer**, R.B. Bloch, J.T. Gooley, C. Jaikla, J. Harrington, S.A. Graham. *In Review*. Globally widespread deep-water turbidites during the early Eocene hothouse highstand.  
  
J.D. Tarnas, J.F. Mustard, H. Lin, T.A. Goudge. E.S. Amador-French, M.S. Bramble, **C.H. Kremer**, X. Zhang, Y. Itoh, and M. Parente. 2019. Constraining the origin of hydrated silica in Jezero crater, Mars. Geophysical Research Letters 46, 12771-12782. <https://doi.org/10.1029/2019GL085584>.   
 **C. H. Kremer**, J. F. Mustard, and M. S. Bramble. 2019. A widespread olivine-rich ash deposit on Mars. Geology. [https://doi.org/10.1130/G45563.1](https://doi.org/10.1130/G45563.1" \t "_blank) ([Research Highlight in Nature](https://www.nature.com/articles/d41586-019-01660-2))

A. C. Pascuzzo, J. F. Mustard,**C. H. Kremer**, and E. Ebinger. 2019. The formation of irregular polygonal ridge networks, Nili Fossae, Mars: Implications for extensive subsurface channelized fluid flow in the Noachian. Icarus 319, 852-868. [https://doi.org/10.1016/j.icarus.2018.10.020](https://doi.org/10.1016/j.icarus.2018.10.020" \o "Persistent link using digital object identifier" \t "_blank)

**C. H. Kremer**, T. R. McHargue , L. Scheucher, and S. A. Graham. 2018. Transversely-sourced mass-transport deposits and stratigraphic evolution of a foreland submarine channel system: Deep-water Tertiary strata of the Austrian Molasse Basin. Marine and Petroleum Geology 92, 1-19. [https://doi.org/10.1016/j.marpetgeo.2018.01.035](https://doi.org/10.1016/j.marpetgeo.2018.01.035" \o "Persistent link using digital object identifier" \t "_blank)

**C. H. Kremer** and D. K. Bird, 2018, Fluid origin and evolution of Cu-Pb-Zn mineralization in rhyolite breccias in the Lón area, southeastern Iceland. Journal of Volcanology and Geothermal Research 349, 177-191. [https://doi.org/10.1016/j.marpetgeo.2018.01.035](https://doi.org/10.1016/j.marpetgeo.2018.01.035" \o "Persistent link using digital object identifier" \t "_blank)

**Selected Conference Proceedings**

**\*C. H. Kremer**, J. F. Mustard, and C. M. Pieters. 2019. Discrete spectral absorption bands in 4-8 um infrared region: New tool for remote compositional assessment of olivine Fe content. NASA Exploration Science Forum, NESF2019-042. ([abstract](https://nesf2019.arc.nasa.gov/sites/default/files/webform/abstracts/abstracts-1/Christopher_Kremer_abstract1.pdf" \t "_blank), [talk](https://nesf2019.arc.nasa.gov/abstract/NESF2019-042))

**\*C. H. Kremer**, J. F. Mustard, M. S. Bramble. 2019. Lithologically diverse yardangs in the circum-Isidis region: Implications for yardang evolution controls and in situ study at the Mars 2020 landing site. Lunar and Planetary Science Conference L, abstract 1639. ([abstract](https://www.hou.usra.edu/meetings/lpsc2019/pdf/1639.pdf))

**\*C. H. Kremer**, M. S. Bramble, and J. F. Mustard. 2018. A hemispherically integrated sedimentary geological system at Nili Fossae, Mars. GSA Annual Meeting, paper 15–11, abstract 323706, doi:10.1130/abs/2018AM-323706. ([abstract](https://gsa.confex.com/gsa/2018AM/webprogram/Paper323706.html" \t "_blank))

**\*C. H. Kremer**, J. F. Mustard, and M. S. Bramble. 2018. A widespread ultramafic sandstone on Mars. GSA Annual Meeting, paper 15–3, abstract 320588, doi:10.1130/abs/2018AM-320588. ([abstract](https://gsa.confex.com/gsa/2018AM/webprogram/Paper320588.html" \t "_blank))

**\*C. H. Kremer**, JF Mustard, and MS Bramble. 2018. Possible clastic origin for olivine-rich rocks in the Nili Fossae region: Implications for NE Syrtis, Midway, and Jezero landing site science. 4th landing site workshop for the 2020 Mars rover mission. ([talk](https://marsnext.jpl.nasa.gov/workshops/2018-10/PRESENTATIONS/m2020_lsw_day2_04_kremer.pdf))

**C. H. Kremer**, J. F. Mustard, M. S. Bramble. 2018. Origin and emplacement of the Circum-Isidis Olivine-Rich Unit. Lunar and Planetary Science Conference XLIX, abstract 1545. [(abstract)](https://www.hou.usra.edu/meetings/lpsc2018/pdf/1545.pdf)

**C. H. Kremer** and D. K. Bird, 2015. Sulfide mineralization in the Lon district, Southeastern Iceland, Goldschmidt Annual Meeting.

*(****\*****indicates talks)*

**Invited Talks**

**C. H. Kremer**, J. F. Mustard, and M. S. Bramble. 2018. A widespread ultramafic ash on Mars. CoRE Center Seminar, Colorado School of Mines, Golden, CO.

**C. H. Kremer**, J. F. Mustard, and M. S. Bramble. 2018. A widespread ultramafic sandstone on Mars. Sedimentary Research Group Seminar, Stanford University, Stanford, CA.

**C. H. Kremer**, T. R. McHargue , L. Scheucher, and SA Graham. 2017. Hydrocarbon reservoir opportunities in large channelized mass-transport complexes. ExxonMobil Upstream Research Company.

**Other Research Talks**

J. F. Mustard, M. S. Bramble, **C. H. Kremer**, and A. C. Pascuzzo. 2018. Outstanding Mars and Planetary Science Questions from Returned Samples Collected from NE Syrtis, Midway and/or Jezero Delta. 4th landing site workshop for the 2020 Mars rover mission ([talk](https://marsnext.jpl.nasa.gov/workshops/2018-10/PRESENTATIONS/m2020_lsw_day2_01_mustard.pdf)).

M. S. Bramble, J. F. Mustard, and **C. H. Kremer**. 2018. Geological Continuity Between the Midway and NE Syrtis Candidate Landing Sites for the Mars 2020 Rover Mission. 4th landing site workshop for the 2020 Mars rover mission ([talk](https://marsnext.jpl.nasa.gov/workshops/2018-10/PRESENTATIONS/m2020_lsw_day2_07_bramble.pdf)).

**Grants**

Curriculum Development Grant, Judith H. Zern 1964 Endowed Teaching Fund, Brown University, 2019  
GSA Graduate Student Research Grant, 2019  
Mel Lane Grant Award, Stanford University, 2017  
McGee and Levorsen Research Grant, Stanford University, 2016  
Shell Fund Grant, Stanford University, 2015

**Teaching**

Course Co-Designer, GEOL 0050: Mars, Moon and the Earth, Brown University, 2018-2019  
Head Teaching Assistant, GEOL 0050: Mars, Moon and the Earth, Brown University, 2018  
Head Teaching Assistant, GS 55Q: The California Gold Rush, Stanford University, 2016  
Course Assistant, GS 55Q: The California Gold Rush, Stanford University, 2014, 2015

**Invited Public Talks and Outreach**

Planetarium Show *in Development*, Science Consultant, California Academy of Sciences, 2018-2020   
“Exploring the Red Planet”, Brown University Club in New York, 2019 ([web](https://www.brownnyc.org/article.html?aid=589))  
”The ETF Space Race”, Guest Contributor, Bloomberg, 2019 ([audio](https://www.bloomberg.com/news/articles/2019-01-10/the-etf-space-race))  
”Astronomy Live: Mars 2020'“, Co-Presenter, American Museum of Natural History, 2019 ([web](https://www.amnh.org/calendar/astronomy-live-mars-2020))

**Press Coverage**

Infrared Spectroscopy Technique Puts Olivine in Focus, Photonics, 2020/11/10 ([web](https://www.photonics.com/Articles/Infrared_Spectroscopy_Technique_Puts_Olivine_in/a66375))  
New remote sensing technique could bring key planetary mineral into focus, News from Brown, Brown University, 2020/11/02 ([web](https://www.brown.edu/news/2020-11-02/olivine))  
“Socially Distant Measurements of Olivine Compositions on Planetary Surfaces”, Planetary News, Lunar and Planetary Institute, 2020/10/13 ([web](https://www.lpi.usra.edu/planetary_news/2020/10/13/socially-distant-measurements-of-olivine-compositions-on-planetary-surfaces/))  
”Planétologie : des cendres volcaniques ont été retrouvées sur Mars”, by Benoît Rey, Science & Vie, No. 1223, 2019/07/26 ([web](https://www.science-et-vie.com/ciel-et-espace/planetologie-des-cendres-volcaniques-ont-ete-retrouvees-sur-mars-50485))  
“Mysterious Martian formation traced to volcanic explosion", Research Highlight in Nature, vol. 570, No. 7759, 2019/06/06 ([web](https://www.nature.com/articles/d41586-019-01660-2))  
”Strange Martian mineral deposit likely sourced from volcanic explosions”, News from Brown, Brown University, 2019/05/22 ([web](https://www.brown.edu/news/2019-05-22/volcanoes))  
“*Haikus About Space/Make Science Less Tedious/So Hope Scientists,”* by Daniela Hernandez, Wall Street Journal (front page), 2019/03/25 ([web](https://www.wsj.com/articles/haikus-about-space-make-science-less-tedious-so-hope-scientists-11553527816))

**Professional Service**

Peer Reviewer for Icarus, Journal of the Geological Society  
Executive Secretary, NASA Review Panel, 2019  
Co-Organizer, Mars Visualization Workshop, American Museum of Natural History-Brown University, 2018  
Contributor, MICA Files (introductory CRISM user’s guide), in collaboration with JHU-APL, 2018 ([web](http://crism.jhuapl.edu/data/mica/))

**Industrial Experience**

Geoscience Intern, Exxon Mobil Corporation, Houston, TX, 2017  
Hydrocarbon Resource Plays, Exxon Mobil/Stanford University, 2016  
Bighorn Basin Field School, Exxon Mobil, 2016  
Vice-President, AAPG Student Chapter, Stanford University 2015-2016  
Research Intern, Rohol Aufsuchungs-Aktiengesellschaft (RAG), Austria, 2015  
Deep-Water Depositional Concepts, Royal Dutch Shell, 2015

**Other Experience**

Wikipedia Contributor, 2007-Present  
Egg Salesman, Sed Farm Free-Range Chicken Eggs, Palo Alto, CA, 2016-2017  
German-English Translator, [Teddy-Hermann GmbH](https://teddy-hermann.de/de////), Bamberg, Germany, 2011

**Languages**

English (native), German (advanced), Latin (intermediate), Mandarin (basic)