Kun Wang **Curriculum Vitae**

Contact Information

Assistant Professor
Department of Earth and Planetary Sciences
Washington University in St. Louis
One Brookings Drive
St. Louis, MO 63130, USA

Email:
wangkun@wustl.edu
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cosmochem.wustl.edu

Research Interests

Planetary formation and differentiation
Non-traditional isotope geochemistry
Analytical development (MC-ICP-MS)

Employment

Assistant Professor, Washington University in St. Louis	2016 –
Origins Prize Postdoctoral Fellow, Harvard University	2014 – 2016
Research Assistant, Washington University in St. Louis	2009 – 2013
Research Assistant, Chinese Academy of Sciences	2008 – 2009

Education

Ph. D., Washington University in St. Louis	2013
M.S., Washington University in St. Louis	2011
B.S., China University of Geosciences	2008

Awards

Harvard Origins of Life Initiative Prize Fellowship	2014 – 2016
NASA Earth and Space Science Fellowship	2012 – 2013
LPI Career Development Award	2012
Carl Tolman Prize for Outstanding Graduate Teaching	2011
Graduating with Honors and Academic Outstanding	2008
National People's Scholarship	2007
Zhongkai Mining Company Fellowship	2006

Peer-Reviewed Publication

In Review (8)

35. **Wang, K.**, and Li, W. (2019) Potassium stable isotope geochemistry and cosmochemistry. *Earth Sciences Frontiers*, (In Review).

34. Tian, Z., Jolliff, B.L., Korotev, R.L., Fegley, B. Jr., Lodders, K., Day, J.M.D., Chen, H., and **Wang, K.** (2019) Potassium isotopic composition of the Moon. *Geochimica et Cosmochimica Acta*, (In Review).

33. Bloom, H., Lodders, K., Chen, H., Zhao, C., Tian, Z., Koefoed, P., Pető, M. K., Jiang, Y., and **Wang, K.** (2019) Potassium isotope compositions of carbonaceous and ordinary chondrites: Implications on the origin of volatile depletion in the early solar system. *Geochimica et Cosmochimica Acta*, (In Review).

32. Liu, H., Xue, Y-Y., Zhang, G., Sun, W-D., Tian, Z., Tuller-Ross, B., and **Wang, K.** (2019) Potassium isotopic composition of low-temperature altered oceanic crust and its impact on the global K cycle. *Geochimica et Cosmochimica Acta*, (In Review).

31. Koefoed, P., Pravdivtseva, O.V., Chen, H., Gerritzen, C., Thiemens, M.M., and **Wang, K.** (2019) Potassium isotope systematics of the LL4 chondrite Hamlet: Implications for chondrule formation. *Earth and Planetary Science Letters*, (In

Review).

30. Liu, H., **Wang, K.**, Sun, W-D., Xiao, Y., Xue, Y-Y., and Tuller-Ross, B. (2019) Extremely light K isotopes in subducted low-T altered oceanic crust: Implications for K recycling in subduction zone. *Geochimica et Cosmochimica Acta*, (In Review).

29. Chen, H., Liu, X-M., and **Wang, K.** (2019) Potassium isotope fractionation during chemical weathering of basalts. *Earth and Planetary Science Letters*, (In Review).

28. Day, J.M.D., Moynier, F., Sossi, P.A., **Wang, K.**, Meshik, A.P., Pradivtseva, O.V., Pettit, D.R. (2019) Moderately volatile element isotope fractionation during high-temperature evaporation determined from the Trinity nuclear test. *Geochimica et Cosmochimica Acta*, (In Review).

Published (27)

27. Chen, J., Jolliff, B.L., Wang, A., Korotev, R.L., **Wang, K.**, Carpenter, P.K., Chen, H., Ling, Z., Fu, X., Ni, Y., Cao, H., and Huang, Y. (2019) Petrogenesis and shock metamorphism of basaltic lunar meteorites Northwest Africa 4734 and 10597. *Journal of Geophysical Research: Planets*, **124**, 2583-2598. DOI:10.1029/2019JE006084

26. Zhao, C., Lodders, K., Bloom, H., Chen, H., Tian, Z., Koefoed, P., Pető, M. K. and **Wang, K.** (2019) Potassium isotopic compositions of enstatite meteorites. *Meteoritics & Planetary Science*, **in press**. DOI:10.1111/maps.13358

25. Jiang, Y., Chen, H., Fegley, B. Jr., Lodders, K., Hsu, W., Jacobsen, S.B., and **Wang, K.** (2019) Implications of K, Cu and Zn isotopes for the formation of tektites. *Geochimica et Cosmochimica Acta*, **259**, 170-187. DOI:10.1016/j.gca.2019.06.003

24. Tuller-Ross B., Marty B., Chen H., Kelley K. A., Lee H. L., and **Wang K.** (2019) Potassium isotopic systematics of oceanic basalts: implications for the mantle composition. *Geochimica et Cosmochimica Acta*, **259**, 144-154. DOI:10.1016/j.gca.2019.06.001

23. Tian, Z., Chen, H., Fegley, B. Jr., Lodders, K., Barrat, J-A., Day, J.M.D., and **Wang, K.** (2019) Potassium isotope compositions of Howardite-Eucrite-Diogenite meteorites. *Geochimica et Cosmochimica Acta*, **266**, 611-632. DOI:10.1016/j.gca.2019.08.012

22. Tuller-Ross B., Savage P.S., Chen H., and **Wang K.** (2019) Potassium isotope fractionation during magmatic differentiation of basalt to rhyolite. *Chemical Geology*, **525**, 37-45. DOI: 10.1016/j.chemgeo.2019.07.017

21. Chen, H., Meshik, A.P., Pravdivtseva, O.V., Day, J.M.D., **Wang, K.** (2019) Evaporative fractionation of potassium isotope during the first nuclear detonation and implication on the formation of the Moon. *Chemical Geology*, **522**, 84-92. DOI:10.1016/j.chemgeo.2019.04.028

20. Lockmiller, K.A., **Wang, K.**, Fike, D.A., Shaughnessya, A.R., Hasenmueller, E.A. (2019) Using multiple tracers (F-, B, δ_{11}B, and optical brighteners) to distinguish between municipal drinking water and wastewater inputs to urban streams. *Science of the Total Environment*, **671**, 1245-1256. DOI:10.1016/j.scitotenv.2019. 03.352

19. Chen, H., Tian, Z., Tuller-Ross, B., Korotev, R. L., and **Wang, K.** (2019) High-

precision potassium isotopic analysis by MC-ICP-MS: An inter-laboratory comparison and refined K atomic weight. J*ournal of Analytical Atomic Spectrometry*, **34**, 160-171. DOI: 10.1039/C8JA00303C

18. Li, Y., Wang, W., Huang, S., **Wang, K.**, and Wu, Z. (2018) First-principles investigation of the concentration effect on equilibrium fractionation of K isotopes in feldspars. *Geochimica et Cosmochimica Acta*, **245**, 374-385. DOI:10.1016/j.gca.2018.11.006

17. **Wang, K.**, and Korotev, R. (2018). Meteorites. In *Oxford Encyclopedia of Planetary Science*. Oxford University Press. DOI:10.1093/acrefore/9780190647926.013.16

16. Wu, Z., Wang, A., Farrell, W. M., Yan, Y., **Wang, K.**, Houghton, J., and Jackson, A. W. (2018) Forming perchlorates on Mars through plasma chemistry during dust events. *Earth and Planetary Science Letters*, 504, 94-105. DOI:10.1016/j.epsl.2018.08.040

15. Parendo, C. A., Jacobsen, S. B. and **Wang, K.** (2017) K isotopes as a tracer of seafloor hydrothermal alteration. *Proceedings of the National Academy of Sciences*, **114**, 1827-1831. DOI: 10.1073/pnas.1609228114

14. **Wang, K.**, and Jacobsen, S. B. (2016) Potassium isotopic evidence for a high energy Giant Impact origin of the Moon. *Nature*, **538**, 487-490. DOI:10.1038/nature19341

13. **Wang, K.**, and Jacobsen, S. B. (2016) An estimate of the Bulk Silicate Earth potassium isotopic composition based on MC-ICPMS measurements of basalts. *Geochimica et Cosmochimica Acta*, **178**, 223-232. DOI: 10.1016/j.gca.2015.12.039

12. **Wang, K.**, Jacobsen, S. B., Sedaghatpour, F., Chen, H., Korotev, R.L. (2015) The earliest Lunar Magma Ocean differentiation recorded in Fe isotopes. *Earth and Planetary Sciences Letters*, **430**, 202-208. DOI: 10.1016/j.epsl.2015.08.019

11. Barrat, J. A., Rouxel, O., **Wang, K.**, Moynier, F., Yamaguchi, A., Bischoff, A. and Langlade, J. (2015) Early stages of core segregation recorded by Fe isotopes in an asteroidal mantle. *Earth and Planetary Sciences Letters*, **419**, 93-100. DOI:10.1016/j.epsl.2015.03.026

10. **Wang, K.**, Savage, P.S., Moynier, F.（2014） The iron isotope composition of enstatite meteorites: Implications for their origin and the metal/sulfide Fe isotopic fractionation factor. *Geochimica et Cosmochimica Acta*, **142**, 149-165. DOI: 10.1016/j.gca.2014.07.019

9. **Wang, K.**, Day, J.M.D., Korotev, R.L., Zeigler, R.A., Moynier, F. (2014) Iron isotope fractionation during sulfide-rich felsic partial melting in early planetesimals. *Earth and Planetary Sciences Letters*, **392**, 124-132. DOI:10.1016/j.epsl.2014.02.022

8. Moynier, F., Fujii, T., **Wang, K.**, Foriel, J. (2013) Ab initio calculations of the Fe(II) and Fe(III) isotopic effects in citrates, nicotianamine, and phytosiderophore, and new Fe isotopic measurements in higher plants. *Comptes Rendus Geosciences*, **345**, 230-240. DOI: 10.1016/j.crte.2013.05.003

7. **Wang, K.**, Moynier, F., Barrat, J-A., Zanda, B., Paniello, R.C., Savage, P.S.

(2013) Homogeneous distribution of Fe isotopes in the early solar nebula. *Meteoritics & Planetary Sciences*, **48**, 354-364. DOI: 10.1111/maps.12060

6. **Wang, K.**, Moynier, F., Podosek, F., Foriel, J. (2012) An iron isotope perspective on the origin of the nanophase metallic iron in lunar regolith. *Earth and Planetary Sciences Letters*, **337-338**, 17-24. DOI: 10.1016/j.epsl.2012.05.021

5. Bishop, MC, Moynier F., Weinstein, C., Fraboulet, J.G., **Wang, K.**, Foriel, J. (2012) The Cu isotopic composition of iron meteorites, *Meteoritics & Planetary Sciences*, **47**, 268–276. DOI: 10.1111/j.1945-5100.2011.01326.x

4. **Wang, K.**, Moynier, F., Dauphas, N., Barrat, J.A., Craddock, P., Sio, C. (2012) Iron isotope fractionation in planetary crusts. *Geochimica et Cosmochimica Acta*, **89**, 31-45. DOI: 10.1016/j.gca.2012.04.050

3. Moynier, F., Blichert-Toft, J., **Wang, K.**, Herzog, G., Albarede, F. (2011) Elusive $_{60}$Fe in the early solar system. *The Astrophysical Journal*, **741**, 71. DOI:10.1088/0004-637X/741/2/71

2. Weinstein, C., Moynier, F., **Wang, K.**, Paniello, R., Foriel, J., Catalano, J., Pichat, S. (2011) Isotopic fractionation of Cu in plants. *Chemical Geology*, **286**, 266-271. DOI: 10.1016/j.chemgeo.2011.05.010

1. **Wang, K.**, Moynier, F., Podosek, F., Foriel, J. (2011) $_{58}$Fe and $_{54}$Cr in early solar system materials. *The Astrophysical Journal Letters*, **739**, L58. DOI:10.1088/20418205/739/2/L58

Invited Talks

Public Talk at St. Louis County Library, October 8, 2019
Lectures; China University of Geosciences, Wuhan, China, September 17, 18, 2019
Invited Talk; Goldschmidt 2019, Barcelona, Spain, August 21, 2019.
Annual Kieler-Woche Lecture; Universität Kiel, Germany, June 24, 2019.
Summer School, University of Science and Technology of China, July 17, 2018.
St. Louis Astronomical Society Monthly Meeting Lecture; March 16, 2018.
Colloquium Lecture; University of Arizona, February 27, 2018.
Colloquium Lecture; University of New Mexico, February 2, 2018.
Colloquium Lecture; University of North Carolina, Chapel Hill, November 2, 2017.
Summer School, Shandong University, Weihai, China, July 11 – 15, 2016.
Invited Talk; Goldschmidt 2016, Yokohama, Japan, July 1, 2016.
Seminar; University of Rochester, New York, February 14, 2014.
Seminar; The University of Texas at El Paso, February 18, 2013.
Seminar; Carnegie institution of Washington; February 12, 2013.

Conference Presentations

31. Yan, J., Catalano, J., Chen, H. and **Wang, K.** (2019) Zinc release and reimmobilization during Fe(II)-induced ferrihydrite transformation. 29th Goldschmidt Conference (Barcelona, Spain). Abstract#: 3785.

30. Lockmiller, K., **Wang, K.**, Fike, D., Shaughnessy, A., and Hasenmueller, E. (2019) Using multiple tracers to distinguish between municipal drinking water and wastewater inputs to streams. 29th Goldschmidt Conference (Barcelona, Spain). Abstract#: 2042.

29. **Wang, K.**, Koefoed, P., Tian, Z., Bloom, H., Zhao, C., and Chen, H. (2019) Potassium isotopic constraints on vaporisation and volatile element evolution

during planet formation. 29th Goldschmidt Conference (Barcelona, Spain). Abstract#: 3582.

28. Tian, Z., Chen, H., Jolliff, B., Korotev, R., Fegley, B. Jr., Lodders, K., and **Wang, K.** (2019) Mass balance for the bulk Moon K budget and isotopic composition. 29th Goldschmidt Conference (Barcelona, Spain). Abstract#: 3370.

27. Liu, H., **Wang, K.**, Sun, W-D., Xiao, Y., and Xue, Y-Y. (2019) Extremely light K isotopes enriched in subducted low-T altered oceanic crust: Implications for K recycling in the subduction zone. 29th Goldschmidt Conference (Barcelona, Spain). Abstract#: 1996.

26. Tian, Z., Chen, H., Korotev, R. L., Koefoed, P., and **Wang, K.** (2019) Potassium isotope constraints on near-surface fractionation effects of bulk lunar soils. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 1586.

25. Koefoed, P., Pravdivtseva, O., Chen, H., Gerritzen, C., and **Wang, K.** (2019) K isotope systematics of individual chondrules from the LL4 chondrite Hamlet. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 1672.

24. Zhao, C., Bloom, H., Chen, H., Tian, Z., Koefoed, P., Lodders, K., and **Wang, K.** (2019) Potassium isotopic compositions of enstatite chondrites and aubrites. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 2689.

23. Wang, A., Yan, Y., Houghton, J., Jolliff, B.L., and **Wang, K.** (2019) Plasma chemistry induced by martian dust storms and dust devils. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 2031.

22. Wang, A., Yan, Y., Jolliff, B.L., and **Wang, K.** (2019) Iron phase transformations induced by plasma chemistry during martian dust events. 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 2036.

21. Chen, J., Jolliff, B.L.,Korotev, R.L., **Wang, K.**, Wang, A., Carpenter, P.K., Chen, H., and Ling, Z. (2019) Northwest Africa 10985: a new lunar gabbro? 50th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 2463.

20. Lee, H. L., Peucker-Ehrenbrink, B., Chen, H., Hasenmueller, E. A., and **Wang, K.** (2018) Potassium isotopes in major world rivers: Implications for weathering and seawater budget. 28th Goldschmidt Conference (Boston, USA). Abstract#: 1434.

19. Tuller-Ross, B., Lee, H. L., Chen, H., Marty, B., Kelley, K. A., and **Wang, K.** (2018) Potassium isotopic systematics of oceanic basalts. 28th Goldschmidt Conference (Boston, USA). Abstract#: 2580.

18. Tian, Z., Chen, H., Fegley, B. Jr., Lodders, K., Korotev, R.L., and **Wang, K.** (2018) Potassium isotopic composition of the Moon. 28th Goldschmidt Conference (Boston, USA). Abstract#: 2537.

17. Chen, H., Liu, X., and **Wang, K.** (2018) Potassium isotopic fractionation during continental weathering. 28th Goldschmidt Conference (Boston, USA). Abstract#: 385.

16. Yan, J., Catalano, J. G., **Wang, K.**, and Chen, H. (2018) Zinc release,

reimmobilization, and isotope fractionation during Fe(II)-catalyzed ferrihydrite transformation. 28th Goldschmidt Conference (Boston, USA). Abstract#: 2889.

15. Bloom, H., Chen, H., Fegley, B. Jr., Lodders, K., and **Wang, K.** (2018) Potassium isotope compositions of carbonaceous and ordinary chondrites: implications on the origin of volatile depletion in the early solar system. 49th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 1193.

14. Chen, H., Meshik, A. P., Pravdivtseva, O. V., Day, J. M. D. and **Wang, K.** (2018) Evaporative fractionation of potassium isotopes during the first nuclear detonation and implication on the formation of the Moon. 49th Lunar and Planetary Science Conference, Abstract#: 1609.

13. Tian, Z., Chen, H., Fegley, B. Jr., Lodders, K., Barrat, J-A., and **Wang, K.** (2018) Potassium isotope differences among chondrites, Earth, Moon, Mars, and 4-Vesta - Implication on the planet accretion mechanisms. 49th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 1276.

12. Jiang, Y., Chen, H., Fegley, B. Jr., Lodders, K., Hsu, W., Jacobsen, S.B., and Wang, K. (2018) New high-precision potassium isotopes of tektites. 49th Lunar and Planetary Science Conference (The Woodlands, TX), Abstract#: 1311.

11. **Wang, K.**, Tian., Z., Chen, H., Fegley, B., Lodders, K., and Barrat, J-A. (2017) Potassium isotopic fractionation during the volatile depletion in early solar system. 27th Goldschmidt Conference (Paris, France). Abstract#: 4419.

10. **Wang, K.**, and Jacobsen, S. B. (2016) New K isotopes support the Moon formed by a high energy giant impact. 2016 American Geophysical Union Fall Meeting (San Francisco, CA). Abstract#: V41D-05.

9. **Wang, K.**, Jacobsen, S. B., Sedaghatpour, F., Chen, H., Korotev, R.L. (2016) Fractionation of Fe isotopes in the lunar magma ocean. 26th Goldschmidt Conference (Yokohama, Japan). Abstract#: 3324.

8. **Wang, K.**, and Jacobsen, S. B. (2016) Potassium Isotope Fractionation in the Continental Crust. 26th Goldschmidt Conference (Yokohama, Japan). Abstract#: 3325.

7. **Wang, K.**, and Jacobsen, S. B. (2016) Potassium isotope cosmochemistry revisited. 47th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 1667.

6. **Wang, K.**, Jacobsen, S. B., Sedaghatpour, F., Chen, H., Korotev, R.L. (2015) Lunar dunite reveals the same iron isotopic composition of the bulk silicate Earth and Moon, 46th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 1980.

5. **Wang, K.**, Moynier, F., Paniello, R.C. (2013) Iron Isotopic Fractionation during Metal/Silicate Segregation in Enstatite Chondrite and Aubrite Parent Bodies, 44th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 2254.

4. **Wang, K.**, Moynier, F., Dauphas N., Barrat, J-A., Day, J.M.D., Sio, C.K., Korotev, R.L., Zeigler, R.A. (2012) Iron Isotopic Fractionation in Early Planetary Crusts, 2012 American Geophysical Union Fall Meeting (San Francisco, CA). Abstract#: P44A-06.

3. **Wang, K.**, Moynier, F., Dauphas, N., Barrat, J-A., Craddock, P., Sio, C. (2012) Iron Isotopic Compositions of Angrites and Stannern-trend Eucrites, 43th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 1146.

2. **Wang, K.**, Moynier, F., Podosek, F., Foriel, J. (2012) Iron Isotope and the Origin of Nanophase Iron in Lunar Regolith. 43th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 1148.

1. Huang, J., Xiao L., **Wang, K.** (2009) Xifeng Circular Basin: Another Failed Potential Crater in China. 40th Lunar and Planetary Science Conference (The Woodlands, TX). Abstract#: 1035.

Service

Journal Reviewer	Geochimica et Cosmochimica Acta (18); Earth and Planetary Sciences Letters (7); Meteoritics & Planetary Sciences (2); The Astrophysical Journal (1); Geology (1); Nature Geoscience (1); American Mineralogist (1); Chemical Geology (1); Geochemical Perspectives Letters (1); Science China Earth Sciences (1)
Proposal/Grant Reviewer	National Aeronautics and Space Administration; National Science Foundation
Conference Session Chair/Organizer	Lunar and Planetary Science Conference; Goldschmidt Conference

Teaching

L19 EPSc 171A: The Solar System	2017, 2018, 2019
L19 EPSc 446 : Stable Isotope Geochemistry	2017
L19 EPSc 566 : Advances in Stable Isotope Geochemistry	2018

Mentoring

Piers Koefoed, MCSS Postdoc Fellow, Washington University in St. Louis	2018 – present
Mason Neuman, Graduate Student, Washington University in St. Louis	2018 – present
Haiyang Liu, Visiting Postdoc Fellow, Chinese Academy of Sciences	2018 – 2019
Carina Gerritzen, Visiting Undergraduate, Universität zu Köln, Germany	2018
Chen Zhao, Visiting Undergraduate, China University of Geosciences, Wuhan	2018
Hannah Bloom, Undergraduate, Washington University in St. Louis	2017 – present
Brenna Tuller-Ross, Master Student, Washington University in St. Louis	2017 – 2019
Heather Lee, Undergraduate, Washington University in St. Louis	2017

	Annabel Shu, Undergraduate, Washington University in St. Louis	2017
	Zhen Tian, Graduate Student, Washington University in St. Louis	2016 – present
	Wilson Kuhnel, Undergraduate, Harvard University	2015 – 2016
Professional Affiliations	Geochemical Society Meteoritical Society American Geophysical Union	