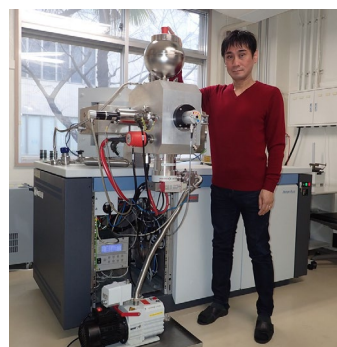


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RESEARCH INTERESTS AND EXPERIENCES

Cosmochemistry

2001-present

- Nucleosynthetic isotope anomalies in meteorites and their components for heavy elements including Cr, Sr, Mo, Te, Nd, Sm, Er, Yb, and Os.
- Radiometric dating of planetary materials using ^{87}Rb - ^{87}Sr , $^{147,146}\text{Sm}$ - $^{143,142}\text{Nd}$, ^{187}Re - ^{187}Os , and $^{235,238}\text{U}$ - $^{207,206}\text{Pb}$ systematics.
- The evolution of U-Pb isotope systematics in Martian mantle and crust.
- Behavior of highly siderophile elements during core formation.
- Geochemical analyses of small amounts (<100 mg) of extraterrestrial samples for the analytical competition related to the sample- return mission.

Geochemistry

1993-present

- Uranium-series disequilibrium in volcanic rock samples from island arc and intra-plate settings.
- Timescale of magma processes beneath active volcanoes.
- Rare gas and carbon isotope compositions in hot spring gases.

Analytical Chemistry

1992-present

- Development of high precision isotope analyses for trans-iron elements (e.g., Sr, Mo, Te, Nd, Sm, Er, Yb, Os, Pb, Ra, Th, and U) with thermal ionization mass spectrometry (TIMS).
- Determination of trace element abundances in terrestrial and extraterrestrial materials with inductively coupled plasma mass spectrometry (ICP-MS).
- Determination of trace element abundances in ancient coins with instrumental neutron activation analysis (INAA).
- Determination of major element abundances in terrestrial materials and ancient coins with X-ray fluorescence spectroscopy (XRF).
- Development of chemical separation techniques with ion-exchange chromatography for trans-iron elements from terrestrial and extraterrestrial materials.
- Development of new sample digestion techniques for terrestrial and extraterrestrial materials.

DEGREES

- Ph.D. in Earth and Planetary Science** **March 1999**
Graduate School of Natural Science and Technology, Okayama University, Japan
- M.Sc. in Chemistry** **March 1995**
Graduate School of Science, Department of Chemistry, University of Tokyo, Japan
- B.Sc. in Chemistry** **March 1993**
School of Science, Department of Chemistry, University of Tokyo, Japan

EMPLOYMENT

- Professor** **2017-present**
Department of Earth and Planetary Sciences, Tokyo Institute of Technology, Japan
- Associate Professor** **2007-2017**
Department of Earth and Planetary Sciences, Tokyo Institute of Technology, Japan
- Research Associate** **2005-2007**
Department of Geology, University of Maryland, USA
- COE-21 Postdoctoral Fellowship** **2003-2005**
Institute for the Study of the Earth's Interior, Okayama University, Japan
- JSPS Research Fellowship for Young Scientists (PD)** **2001-2003**
Institute for the Study of the Earth's Interior, Okayama University, Japan
- COE Researcher** **1998-2001**
Institute for the Study of the Earth's Interior, Okayama University, Japan
- Technical Assistant** **1998-1998**
Institute for the Study of the Earth's Interior, Okayama University, Japan

HONORS

- Educational prize for young faculty in school of Science** **2015**
Tokyo Institute of Technology
- Award for young scientist in school of Science** **2009**
Tokyo Institute of Technology
- The Geochemical Society of Japan Award for Young Researcher** **2004**
The Geochemical Society of Japan

PUBLICATION LIST (Peer-reviewed papers)

1. Nakamura, H., Sano, A., Kagami, S., Yokoyama, T., Ishikawa, A., Komiya, T., Iwamori, H. Compositional heterogeneity of Archean mantle estimated from Sr and Nd isotopic systematics of basaltic rocks from North Pole, Australia, and the Isua Supracrustal Belt, Greenland. *Precambrian Research*
2. Taniuchi, H., Kuritani, T., Yokoyama, T., Nakamura, E., Nakagawa, M. A new concept for the genesis of felsic magma: the separation of slab-derived supercritical liquid. *Sci. Rep.* 10, 1-9, 2020.
3. Kuritani, T., Nakagawa, M., Nishimoto, J., Yokoyama, T., Miyamoto, T. Magma plumbing system for Millennium Eruption at Changbaishan volcano, China: Constraints from whole-rock U-Th disequilibrium. *Lithos* 366-367, 105564, 2020.
4. Yokoyama, T., Fukai, R., Nakahara, M. Separation of heavy lanthanoids by flash column chromatography for precise determination of Er and Yb isotope compositions in rock samples. *Geostandard. Geoanal. Res.* 44, 265-285, 2020. doi: 10.1111/ggr.12317
5. Moriwaki, R., Usui, T., Tobita, M., Yokoyama, T. Geochemically heterogeneous Martian mantle inferred from Pb isotope systematics of depleted shergottites. *Geochimica et Cosmochimica Acta* 274, 157-171, 2020. doi: 10.1016/j.gca.2020.01.014
6. Okabayashi, S., Yokoyama, T., Hirata, T., Terakado, K., Galimov, E.M. Iron isotopic signature in Luna 16, 20, 24 soils: Effect of space weathering and Fe isotopic composition of very low-Ti basalt. *Geochimica et Cosmochimica Acta* 269, 1-14, 2020. doi: 10.1016/j.gca.2019.10.020
7. Asaah, A.N.E., Yokoyama, T., Aka, F.T., Kuritani, T., Iwamori, H., Usui, T., Gountie, M.D., Tamen, J., Hasegawa, T., Fozing, T.E.M., Nche, A.L. Major/trace elements and Sr–Nd–Pb isotope systematics of lavas from Lakes Barombi Mbo and Barombi Koto in the Kumba graben, Cameroon Volcanic Line: Constraints on petrogenesis. *Journal of African Earth Science*. 161, 103675 (14 pp), 2020. doi: 10.1016/j.jafrearsci.2019.103675
8. Yokoyama, T., Nagai, Y., Fukai, R., Hirata, T. Origin and evolution of distinct Mo isotopic variabilities within carbonaceous and non-carbonaceous reservoirs. *Astrophys. J.* 883, 62 (23pp), 2019. DOI: 10.3847/1538-4357/ab39e7
9. Kagami, S., Haba, M.K., Yokoyama, T., Usui, T., Greenwood, R.C. Geochemistry and Sm–Nd chronology of a Stannern trend eucrite, Northwest Africa 7188. *Meteoritics & Planetary Science*, 54, 2710-2728, 2019. DOI: 10.1111/maps.13382
10. Fukai, R., Yokoyama, T. Assessment of the secondary instrumental fractionation in TIMS: Implication for high precision Nd isotope analysis of geological samples. *Geochem. J.* 53, 333-337, 2019. doi: 10.2343/geochemj.2.0569
11. Nakanishi, N., Yokoyama, T., Ishikawa, A. Refinement of the micro-distillation technique for isotopic analysis with pg-level Os in geologic samples. *Geostandard. Geoanal. Res.* 43, 231-243, 2019. DOI: 10.1111/ggr.12262
12. Fukai, R., Yokoyama, T. Nucleosynthetic Sr–Nd isotope correlation in chondrites: Evidence for nebular thermal processing and dust transportation in the early Solar System. *Astrophys. J.* 879, 79 (12pp), 2019. doi: 10.3847/1538-4357/ab0e0d
13. Okabayashi, S., Yokoyama, T., Nakanishi, N., Iwamori, H. Fractionation of highly siderophile elements in metal grains from unequilibrated ordinary chondrites: Implication for the origin of chondritic metals. *Geochimica et Cosmochimica Acta*, 244, 197-215, 2019.
14. Kuritani, T., Yamaguchi, A., Fukumitsu, S., Nakagawa, M., Matsumoto, A., Yokoyama, T. Magma plumbing system at Izu-Oshima volcano, Japan: constraints from petrological, geochemical and principal component analyses. *Frontiers in Earth Science*, 6, 178, 2018.
15. Aka, F.T., Hasegawa, T., Nche, L.A., Asaah, A.N.E., Mimba, M.E., Teitchou, I., Ngwa, C., Miyabuchi, Y., Kobayashi, T., Kankeu, B., Yokoyama, T., Tanyileke, G., Ohba, T., Hell, J.V., Kusakabe, M. Upper Triassic mafic dykes of Lake Nyos, Cameroon (West Africa) I: K–Ar age evidence within the context of Cameroon Line magmatism, and the tectonic significance.

Journal of African Earth Sciences, 141, 49-59, 2018.

16. Nakanishi, N., Yokoyama, T., Okabayashi, S., Usui, T., Iwamori, H. Re–Os isotope systematics and fractionation of siderophile elements in metal phases from CB_a chondrites. *Meteoritics & Planetary Science* 53, 1051-1065, 2018.
17. Myojo, K., Yokoyama, T., Okabayashi, S., Wakaki, S., Sugiura, N., Iwamori, H. The origin and evolution of nucleosynthetic Sr isotope variability in calcium and aluminum-rich refractory inclusions. *The Astrophysical Journal* 853, 48 (9pp), 2018.
18. Moriwaki, R., Usui, T., Simon, J.I., Jones, J.H., Yokoyama, T., Tobita, M. Lead isotope systematics of the olivine-phyric shergottite Tissint: New geochemical signatures of the shergottite source mantle. *Earth and Planetary Science Letters* 474, 180-189, 2017.
19. Fukai, R., Yokoyama, T. Neodymium isotope heterogeneity for ordinary and carbonaceous chondrites and the origin of non-chondritic ¹⁴²Nd composition of the Earth. *Earth and Planetary Science Letters* 474, 206-214, 2017.
20. Kuritani, T., Sakuyama, T., Kamada, N., Yokoyama, T., Nakagawa, M. Fluid-fluxed melting of mantle vs. decompression melting of hydrous mantle plume as the cause of intraplate magmatism over a stagnant slab: implications from Fukue Volcano Group, SW Japan. *Lithos*, 282-283, 98-110, 2017.
21. Fukami, Y., Tobita, M., Yokoyama, T., Moriwaki, R., Usui, T. Precise isotope analysis for sub-nanogram lead by total evaporation thermal ionization mass spectrometry (TE-TIMS) coupled with ²⁰⁴Pb–²⁰⁷Pb double spike method. *Journal of Analytical Atomic Spectrometry*. 32, 848-857, 2017.
22. Tsujimoto, T., Yokoyama, T., Bekki, K. Chemical evolution of ²⁴⁴Pu in the solar vicinity and its implication for the properties of r-process production. *Astrophys. J. Lett.*, 835, L3 (5pp), 2017.
23. Fukai, R., Yokoyama, T., Kagami, S. Evaluation of the long-term fluctuation in isotope ratios measured by TIMS with static, dynamic, and multistatic methods: A case study for Nd isotope measurements. *International Journal of Mass Spectrometry*, 414, 1-7, 2017.
24. Yokoyama, T., Nagai, Y., Hinohara, Y., Mori, T. Investigating the influence of nonspectral matrix effects for determination of 22 trace elements in rock samples by ICP-QMS. *Geostandards and Geoanalytical Research*, DOI: 10.1111/ggr.12147, 41, 221-242, 2017.
25. Tobita, M., Usui, T., Yokoyama, T. New Constraints on the Shergottite Petrogenesis by Analysis of Pb Isotopic Compositional Space: Implication for Mantle Heterogeneity and Crustal Assimilation on Mars. *Geochemical Journal*, 51, 81-94, 2017.
26. Fukami, Y., Yokoyama, T. Tellurium isotope compositions in acid leach fractions of carbonaceous chondrites. *Geochemical Journal*, 51, 17-29, 2017.
27. Kuritani, T., Tanaka, M., Yokoyama, T., Nakagawa, M., Matsumoto, A. Intensive hydration of the wedge mantle at the Kuril arc–NE Japan arc junction: implications from mafic lavas from Usu Volcano, northern Japan. *Journal of Petrology*, 57, 1223-1240, 2016.
28. Kagami, S., Yokoyama, T. Chemical separation of Nd from geological samples for chronological studies using ¹⁴⁶Sm–¹⁴²Nd and ¹⁴⁷Sm–¹⁴³Nd systematics. *Analytica Chimica Acta*, 937, 151-159, 2016.
29. Yokoyama, T., Walker, R.J. Nucleosynthetic isotope variation of siderophile and chalcophile elements in the Solar System. *Reviews in Mineralogy and Geochemistry*. vol. 81. in Highly siderophile and strongly chalcophile elements in high temperature geochemistry and cosmochemistry, 81, 107-160, 2016.
30. Nagai, Y., Yokoyama, T. Molybdenum isotope analysis by negative thermal ionization mass spectrometry (N-TIMS): Effects of oxygen isotopic compositions. *Journal of Analytical Atomic Spectrometry*., 31, 948-960, 2016.
31. Asaah, A.N.E., Yokoyama, T., Aka, F.T., Usui, T., Kuritani, T., Wirmvem, M.J., Iwamori, H., Asaah, F.N.J., Ohba, T., Tanyileke, G., Hell, J.V. A. Geochemistry of Lavas from Maar-bearing

- Volcanoes in the Oku Volcanic Group of the Cameroon Volcanic Line. *Chemical Geology*, 406, 55-69, 2015.
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 36. Nakamura, H., Fujita, Y., Nakai, S., Yokoyama, T., Iwamori, H. Rare earth elements and Sr-Nd-Pb isotopic analyses of the Arima hot spring waters, Southwest Japan: Implications for origin of the Arima-type brine. *J. Geol. Geosci.*, 3, 1000161, 2014.
 37. Nagai, Y., Yokoyama, T. Chemical Separation of Mo and W from Terrestrial and Extraterrestrial Samples via Anion Exchange Chromatography. *Anal. Chem.*, 86, 4856-4863, 2014. DOI: 10.1021/ac404223t,
 38. Fukami, Y., Yokoyama, T. Precise tellurium isotope analysis by negative thermal ionization mass spectrometry (N-TIMS) *J. Anal. St. Spectrom.* 29, 520-528, 2014.
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