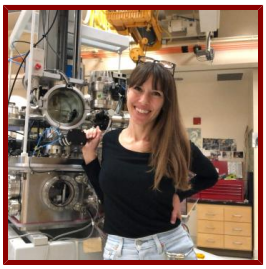
Stanford



Christine Jilly

Rsch and Dev Scientist Engr 2, Stanford Doerr School of Sustainability - Dean's Office

Bio

BIO

Christie is a research scientist specializing in secondary ion mass spectroscopy (SIMS). She serves as a lab manager for the Cameca NanoSIMS 50L instrument in the Stanford Nano Shared Facilities, as well as the SHRIMP-RG ion microprobe in the Stanford Doerr School of Sustainability, Department of Earth and Planetary Sciences.

Prior to Stanford, Christie received her Ph.D. in Geology and Geophysics from the University of Hawaii at Manoa, utilizing their Cameca 1280 IMS ion microprobe for isotopic analyses of meteoritic materials, as well as SEM/EDS and EPMA for sample characterization. She completed a postdoc at UC Berkeley Space Sciences Laboratory, where she gained experience in numerous other microanalytical techniques, including FIB, TEM, and synchrotron XANES, to study the chemical composition of comet grains and meteorites. Her current research focuses on isotopic analysis of terrestrial and extraterrestrial samples in order to unravel the mysteries of our Solar System.

CURRENT ROLE AT STANFORD

Research Scientist specializing in isotopic geochemistry using secondary ion mass spectrometry (SIMS). Lab Manager for the SHRIMP-RG and NanoSIMS labs.

LINKS

- The SHRIMP-RG Lab: https://shrimprg.stanford.edu/
- The SNSF NanoSIMS Lab: https://snsf.stanford.edu/facilities/xsa/nanosims
- Astronomy Mag Ask Astro Column Contribution: https://www.astronomy.com/science/why-do-the-solar-systems-planets-have-different-compositions/

Publications

PUBLICATIONS

- **Quantum critical electro-optic and piezo-electric nonlinearities.** *Science (New York, N.Y.)*
  Anderson, C. P., Scuri, G., Chan, A., Eun, S., White, A. D., Ahn, G. H., Jilly, C., Safavi-Naeini, A., Van Gasse, K., Li, L., Vučković, J.
  2025; 390 (6771): 394-399

- **The variety and origin of materials accreted by Bennu's parent asteroid** *NATURE ASTRONOMY*
  Barnes, J. J., Nguyen, A. N., Abernethy, F. J., Bajo, K., Bekaert, D. V., Bloch, E., Brennecka, G. A., Busemann, H., Cowpe, J. S., Crowther, S. A., Ek, M., Fawcett, L. J., Fehr, et al
  2025

- **Comment on "A Bayesian age from dispersed plagioclase and zircon dates in the Los Chocoyos ash, Central America" by Baudry et al. (2024)** *EARTH AND PLANETARY SCIENCE LETTERS*

Singer, B. S., Baudry, A., Keller, B., Jicha, B. R., Jilly-Rehak, C., Vazquez, J. A.
2025; 653

- **Nanoscale Characteristics of Carlin-Type Auriferous Pyrite from the Nadaleen Trend, Yukon** *ECONOMIC GEOLOGY*
  Holley, E. A., Jilly-Rehak, C., Sack, P., Phillips, D. L., Gopon, P.
  2024; 119 (7): 1643-1666
- **A Bayesian age from dispersed plagioclase and zircon dates in the Los Chocoyos ash, Central America** *EARTH AND PLANETARY SCIENCE LETTERS*
  Baudry, A., Singer, B. S., Jicha, B., Jilly-Rehak, C. E., Vazquez, J. A., Keller, C.
  2024; 643
- **Trace Element Zonation in Carlin-Type Pyrite: Tracking Ore-Forming Processes at the Nanoscale** *ECONOMIC GEOLOGY*
  Holley, E. A., Jilly-Rehak, C., Fulton, A. A., Gorman, B.
  2024; 119 (5)
- **Zircon Constraints on the Eruptive Sequence and Magma Evolution of Rhyolites at South Sister Volcano, Oregon** *GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS*
  Dechert, A. E., Andersen, N. L., Dufek, J., Jilly, C. E.
  2024; 25 (8)
- **Melt inclusions in zircon: a window to understanding the structure and evolution of the magmatic system beneath the Laguna del Maule volcanic field** *CONTRIBUTIONS TO MINERALOGY AND PETROLOGY*
  Shimizu, K., Blum, T. B., Bonamici, C. E., Fournelle, J. H., Jilly-Rehak, C. E., Kita, N. T., Kitajima, K., Klug, J. D., Nachlas, W. O., Singer, B. S., Spicuzza, M. J., Sobolev, A. V., Wathen, et al
  2024; 179 (6)
- **Characteristics and evolution of quartz-calcite-sulfide veins in the Nazca-Ocona belt, Peru** *ORE GEOLOGY REVIEWS*
  Crespo, J., Holley, E., Pfaff, K., Thompson, J. A., Fulton, A., Jilly-Rehak, C., Huamani, R., Guillen, M.
  2024; 165
- **Oxygen fugacity buffering in high-pressure solid media assemblies from IW-6.5 to IW+4.5 and application to the V K-edge oxybarometer** *AMERICAN MINERALOGIST*
  Righter, K., Butterworth, A. L., Gainsforth, Z., Jilly-Rehak, C. E., Roychoudhury, S., Iacovino, K., Rowland, R., Erickson, T. M., Pando, K., Ross, D. K., Prendergast, D., Westphal, A. J.
  2023; 108 (3): 498-513
- **Glucose dissociates DDX21 dimers to regulate mRNA splicing and tissue differentiation.** *Cell*
  Miao, W., Porter, D. F., Lopez-Pajares, V., Siprashvili, Z., Meyers, R. M., Bai, Y., Nguyen, D. T., Ko, L. A., Zarnegar, B. J., Ferguson, I. D., Mills, M. M., Jilly-Rehak, C. E., Wu, et al
  2023; 186 (1): 80
- **Nanoscale isotopic evidence resolves origins of giant Carlin-type ore deposits** *GEOLOGY*
  Holley, E. A., Fulton, A., Jilly-Rehak, C., Johnson, C., Pribil, M.
  2022; 50 (6): 660-664
- **Fine-grained material associated with a large sulfide returned from Comet81P/Wild 2** *METEORITICS & PLANETARY SCIENCE*
  Gainsforth, Z., Westphal, A. J., Butterworth, A. L., Jilly-Rehak, C. E., Brownlee, D. E., Joswiak, D. J., Ogliore, R. C., Zolensky, M. E., Bechtel, H. A., Ebel, D. S., Huss, G. R., Sandford, S. A., White, et al
  2019; 54 (5): 1069-1091
- **TECHNIQUE FOR COMPARISON OF MICRO-CAI CONCENTRATIONS IN 81P/WILD2 FINE-GRAINED MATERIAL AND PRIMITIVE METEORITE MATRICES**
  Westphal, A. J., Fakra, S., Butterworth, A. L., Gainsforth, Z., Jilly-Rehak, C. E.
  WILEY.2018: 6301
- **Low-temperature aqueous alteration on the CR chondrite parent body: Implications from in situ oxygen-isotope analyses** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Jilly-Rehak, C. E., Huss, G. R., Nagashima, K., Schrader, D. L.
  2018; 222: 230-252

- **Insights into solar nebula formation of pyrrhotite from nanoscale disequilibrium phases produced by H2S sulfidation of Fe metal** *AMERICAN MINERALOGIST*
  Gainsforth, Z., Lauretta, D. S., Tamura, N., Westphal, A. J., Jilly-Rehak, C. E., Butterworth, A. L.
  2017; 102 (9): 1881-1893

- **OXYGEN BUFFERING IN HIGH PRESSURE SOLID MEDIA ASSEMBLIES: NEW APPROACH ENABLING STUDY OF fO(2) FROM IW-4 TO IW +4.5.**
  Righter, K., Pando, K. M., Ross, D. K., Butterworth, A. L., Gainsforth, Z., Jilly-Rehak, C. E., Westphal, A. J.
  WILEY.2017: A285

- **Mn-53-(53) Cr radiometric dating of secondary carbonates in CR chondrites: Timescales for parent body aqueous alteration** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Jilly-Rehak, C. E., Huss, G. R., Nagashima, K.
  2017; 201: 224-244

- **O-ISOTOPE MAPPING OF FINE-GRAINED MATERIAL COLLECTED FROM COMET 81P/WILD 2.**
  Frank, D. R., Huss, G. R., Nagashima, K., Westphal, A. J., Jilly-Rehak, C. E.
  WILEY-BLACKWELL.2016: A262

- **Petrography and classification of NWA 7402: A new sulfide-rich unequilibrated ordinary chondrite** *CHEMIE DER ERDE-GEOCHEMISTRY*
  Jilly-Rehak, C. E., Huss, G. R., Bonal, L., Twelker, E.
  2016; 76 (1): 111-116

- **(MN)-M-53-(CR)-C-53 DATING OF SECONDARY DOLOMITE IN A RENAZZO (CR CHONDRITE) DARK INCLUSION**
  Jilly-Rehak, C. E., Huss, G. R., Nagashima, K.
  WILEY-BLACKWELL.2015

- **Mn-53-Cr-53 dating of aqueously formed carbonates in the CM2 lithology of the Sutter's Mill carbonaceous chondrite** *METEORITICS & PLANETARY SCIENCE*
  Jilly, C. E., Huss, G. R., Krot, A. N., Nagashima, K., Yin, Q., Sugiura, N.
  2014; 49 (11): 2104-2117

- **Identification and characterization of science-rich landing sites for lunar lander missions using integrated remote sensing observations** *ADVANCES IN SPACE RESEARCH*
  Flahaut, J., Blanchette-Guertin, J., Jilly, C., Sharma, P., Souchon, A., van Westrenen, W., Kring, D. A.
  2012; 50 (12): 1647-1665