



## Rodney Ewing

Frank Stanton Professor of Nuclear Security and Senior Fellow at the Freeman Spogli Institute for International Studies and at the Precourt Institute for Energy  
Geological Sciences

### Bio

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#### BIO

Rod Ewing is the Frank Stanton Professor in Nuclear Security in the Center for International Security and Cooperation in the Freeman Spogli Institute for International Studies and a Professor in the Department of Geological Sciences in the School of Earth, Energy and Environmental Sciences at Stanford University. He is the Edward H. Kraus Distinguished University Professor Emeritus at the University of Michigan, where he was in three Departments: Earth & Environmental Sciences, Nuclear Engineering & Radiological Sciences, and Materials Science and Engineering. He is also a Regents' Emeritus Professor at the University of New Mexico.

Ewing received a B.S. degree in geology from Texas Christian University (1968, summa cum laude) and M.S. (1972) and Ph.D. (1974, with distinction) degrees from Stanford University where he held an NSF Fellowship. His graduate studies focused on an esoteric group of minerals, metamict Nb-Ta-Ti oxides, which are unusual because they have become amorphous due to radiation damage caused by the presence of radioactive elements. Over the past forty years, the early study of these unusual minerals has blossomed into a broadly based research program on radiation effects in complex ceramic materials. This has led to the development of techniques to predict the long-term behavior of materials, such as those used in radioactive waste disposal. He is the author or co-author of over 750 research publications and the editor or co-editor of 18 monographs, proceedings volumes or special issues of journals. He has published widely in mineralogy, geochemistry, materials science, nuclear materials, physics and chemistry in over 100 different ISI journals. He has been granted a patent for the development of a highly durable material for the immobilization of excess weapons plutonium.

Ewing has received the Hawley Medal of the Mineralogical Association of Canada in 1997 and 2002, a Guggenheim Fellowship in 2002, the Dana Medal of the Mineralogical Society of America in 2006, the Lomonosov Gold Medal of the Russian Academy of Sciences in 2006, a Honorary Doctorate from the Université Pierre et Marie Curie in 2007, Roebling Medal of the Mineralogical Society of America, and is a foreign Fellow of the Royal Society of Canada. He is also a fellow of the Geological Society of America, Mineralogical Society of America, American Geophysical Union, Geochemical Society and the European Association of Geochemistry, American Ceramic Society, the American Association for the Advancement of Science, Mineralogical Society of Great Britain and Ireland, and the Materials Research Society. He was elected to the National Academy of Engineering in 2017.

He has been president of the Mineralogical Society of America (2002) and the International Union of Materials Research Societies (1997-1998). Ewing has served on the Board of Directors of the Geochemical Society (2012-2015) and the Board of Governors of the Geological Institute of America (2006-2015). He is a member of the Science and Security Board of the Bulletin of the Atomic Scientists and on the Editorial Board of Applied Physics Reviews. He is a founding Editor of the magazine Elements, which is now supported by 17 earth science societies, and a Founding Executive Editor of Geochemical Perspective Letters. He is a member of the Board of Earth Sciences and Resources of the National Academy of Science, Engineering and Medicine (2017-2020).

Professor Ewing is co-editor of and a contributing author of *Radioactive Waste Forms for the Future* (North-Holland Physics, Amsterdam, 1988) and *Uncertainty Underground – Yucca Mountain and the Nation’s High-Level Nuclear Waste* (MIT Press, 2006). He has served on eleven National Research Council committees for the National Academy of Sciences that have reviewed issues related to nuclear waste and nuclear weapons. He was appointed by President Obama to Chair the Nuclear Waste Technical Review Board (2012-2017).

## **ACADEMIC APPOINTMENTS**

- Professor, Geological Sciences
- Senior Fellow, Freeman Spogli Institute for International Studies
- Senior Fellow, Precourt Institute for Energy

## **ADMINISTRATIVE APPOINTMENTS**

- Co-Director, Center for International Security and Cooperation, (2017-2020)

## **HONORS AND AWARDS**

- Distinguished Public Service Medal, Mineralogical Society of America (2019)
- Robert Cahn Award for research on nuclear materials, Journal of Nuclear Materials and NuMat Meeting (2018)
- Election, National Academy of Engineering (2017)
- Grandey Distinguished Lecture, Colorado School of Mines (2017)
- Radiation Effects in Insulators Award for lifetime achievement, International Committee for REI (2017)
- Baldwin Frontiers in Geology Distinguished Lecture, University of Miami Ohio (2016)
- Director's Distinguished Lecture, Pacific Northwest National Laboratory (2016)
- IMA Medal for Excellence in Mineralogical Research, International Mineralogical Association (2015)
- Ian Campbell Medal for Superlative Service to the Geosciences, American Geoscience Institute (2015)
- Roebling Medal, Mineralogical Society of America (2015)
- Edward H. Kraus Distinguished University Professor Emeritus, University of Michigan (2014 - present)
- Honorary Fellow, Mineralogical Society of Great Britain and Ireland (2013)
- Ida Beam Distinguished Visiting Professorship, University of Iowa (2013)
- Hallimond Lecture, Mineralogical Society of Great Britain and Ireland (2010)
- Edward H. Kraus Distinguished University Professor, University of Michigan (2009 - 2013)
- Fellow, Geochemical Society and the European Association for Geochemistry (2009)
- Foreign Fellow, Royal Society of Canada (2009)
- Fellow, American Ceramic Society (2008)
- Fellow, Materials Research Society (2008)
- Docteur Honoris Causa, Université Pierre et Marie Curie, Paris VII (2007)
- Fellow, American Geophysical Union (2007)
- Hamilton Visiting Scholar, Southern Methodist University (2007)
- Award for Outstanding Editorial or Publishing Contributions, Association of Earth Science Editors (2006)
- Dana Medal, Mineralogical Society of America (2006)
- Lomonosov Great Gold Medal, Russian Academy of Sciences (2006)
- Michel T. Halbouty Distinguished Lecturer, Geological Society of America (2006)
- Umbgrove Lecture, Universiteit Utrecht, The Netherlands (2006)

- Zussman Lecture, University of Manchester (2005)
- Distinguished Lecturer, Mineralogical Society of America (2004 - 2005)
- Fellow, American Association for the Advancement of Science (2004)
- Fellowship, Guggenheim Foundation (2002)
- Hawley Medal, Mineralogical Association of Canada (2002)
- Regents' Professor Emeritus, University of New Mexico (1997 - present)
- Fellowship, Yamada Foundation, University of Tokyo (1997)
- Hawley Medal, Mineralogical Association of Canada (1997)
- Regents' Professor, University of New Mexico (1993 - 1997)
- Fellow, Geological Society of America (1985)
- Fellow, Mineralogical Society of America (1983)

### **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Past-President, American Geoscience Institute (2019 - 2020)
- President, American Geoscience Institute (2018 - 2019)
- Member, Board on Earth Sciences and Resources, National Research Council (2017 - present)
- President-Elect, American Geoscience Institute (2017 - 2018)
- Member, Editorial Board of Applied Physics Review (2014 - 2018)
- Executive Editor, Geochemical Perspectives Letters (2014 - 2016)
- Member, Science and Security Board of the Bulletin of Atomic Scientists (2013 - present)
- Director, Board of Directors of the Geochemical Society (2012 - 2015)
- Chairman, Nuclear Waste Technical Review Board (2011 - 2017)
- Principal Editor, Nano LIFE (2010 - present)
- Governor, Board of Governors of the Gemological Institute of America (2006 - 2015)
- Founding Editor, Elements magazine (2003 - 2004)
- President, Mineralogical Society of America (2002 - 2003)
- President, International Union of Materials Research Societies (1997 - 1998)

### **PROFESSIONAL EDUCATION**

- Ph.D., Stanford University , Mineralogy (1974)
- M.S., Stanford University , Mineralogy (1972)
- B.S., Texas Christian University , Geology (1968)

### **PATENTS**

- Rodney Ewing, Werner Lutze, William J. Weber. "United States Patent 5,545,797 Method of immobilizing weapons plutonium to provide a durable, disposal waste product", University of New Mexico, Sep 13, 1996

### **LINKS**

- Research Group: <https://earth.stanford.edu/ewing-group/>

## Teaching

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### COURSES

#### 2021-22

- Interschool Honors Program in International Security Studies: IIS 199 (Aut, Win, Spr)

#### 2020-21

- Interschool Honors Program in International Security Studies: IIS 199 (Aut, Win, Spr)

#### 2019-20

- Interschool Honors Program in International Security Studies: IIS 199 (Aut, Win, Spr)

#### 2018-19

- Germany: Nuclear Power and Energiewende: OSPBER 61 (Spr)
- Managing Nuclear Waste: Technical, Political and Organizational Challenges: INTLPOL 266 (Win)
- Technology and National Security: GEOLSCI 167, GEOLSCI 267, MS&E 193, MS&E 293 (Aut)

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Sulgiye Park

#### Doctoral Dissertation Co-Advisor (AC)

Dara Hok

## Publications

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### PUBLICATIONS

- **Volatilization of B4C control rods in Fukushima Daiichi nuclear reactors during meltdown: B-Li isotopic signatures in cesium-rich microparticles.** *Journal of hazardous materials*  
Fueda, K., Takami, R., Minomo, K., Morooka, K., Horie, K., Takehara, M., Yamasaki, S., Saito, T., Shiotsu, H., Ohnuki, T., Law, G. T., Grambow, B., Ewing, et al  
1800; 428: 128214
- **Phase stability of pre-irradiated CeO2 with swift heavy ions under high pressure up to 45 GPa** *JOURNAL OF THE AMERICAN CERAMIC SOCIETY*  
Lan, J., Zhai, P., Nan, S., Xu, L., Niu, J., Tian, C., Li, Z., Li, W., Liu, J., Ewing, R.  
2021
- **Fracture toughness of radiation-damaged zircon studied by nanoindentation pillar-splitting** *APPLIED PHYSICS LETTERS*  
Beirau, T., Rossi, E., Sebastiani, M., Oliver, W. C., Poellmann, H., Ewing, R. C.  
2021; 119 (23)
- **Assessing Uranium Ore Processing Activities Using Satellite Imagery at Pyongsan in the Democratic People's Republic of Korea** *SCIENCE & GLOBAL SECURITY*  
Park, S., Ewing, R. C., Terry McNulty, Puccioni, A.  
2021
- **New highly radioactive particles derived from Fukushima Daiichi Reactor Unit 1: Properties and environmental impacts.** *The Science of the total environment*  
Morooka, K., Kurihara, E., Takehara, M., Takami, R., Fueda, K., Horie, K., Takehara, M., Yamasaki, S., Ohnuki, T., Grambow, B., Law, G. T., Ang, J. W., Bower, et al  
2021; 773: 145639
- **Alpha-decay induced shortening of fission tracks simulated by in situ ion irradiation** *GEOCHIMICA ET COSMOCHIMICA ACTA*  
Li, W., Cheng, Y., Feng, L., Niu, J., Liu, Y., Skuratov, V. A., Zdorovets, M., Boatner, L. A., Ewing, R. C.

2021; 299: 1–14

- **Socio-technical multi-criteria evaluation of long-term spent nuclear fuel management strategies: A framework and method.** *The Science of the total environment*  
Diaz-Maurin, F. n., Yu, J. n., Ewing, R. C.  
2021; 777: 146086
- **The Role of Water and Hydroxyl Groups in the Structures of Stetindite and Coffinite, MSiO<sub>4</sub> (M = Ce, U).** *Inorganic chemistry*  
Strzelecki, A. C., Barral, T. n., Estevenon, P. n., Mesbah, A. n., Goncharov, V. n., Baker, J. n., Bai, J. n., Clavier, N. n., Szenknect, S. n., Migdisov, A. n., Xu, H. n., Ewing, R. C., Dacheux, et al  
2021
- **Radiation effects in M(n+1)AX(n) phases** *APPLIED PHYSICS REVIEWS*  
Wang, C., Tracy, C. L., Ewing, R. C.  
2020; 7 (4)
- **Reflections of a Scientist Laboring in the Nuclear Waste Field.** *Ground water*  
Ewing, R. C.  
2020
- **Disorder in Ho<sub>2</sub>Ti<sub>2</sub>-xZrxO<sub>7</sub>: pyrochlore to defect fluorite solid solution series** *RSC ADVANCES*  
Drey, D. L., O'Quinn, E. C., Subramani, T., Lilova, K., Baldinozzi, G., Gussev, I. M., Fuentes, A. F., Neuefeind, J. C., Everett, M., Sprouster, D., Navrotsky, A., Ewing, R. C., Lang, et al  
2020; 10 (57): 34632–50
- **Local order of orthorhombic weberite-type Y<sub>3</sub>TaO<sub>7</sub> as determined by neutron total scattering and density functional theory calculations** *ACTA MATERIALIA*  
Gussev, I. M., O'Quinn, E. C., Baldinozzi, G., Neuefeind, J., Ewing, R. C., Zhang, F., Lang, M.  
2020; 196: 704–9
- **Thermodynamics of CeSiO<sub>4</sub>: Implications for Actinide Orthosilicates.** *Inorganic chemistry*  
Strzelecki, A. C., Bourgeois, C., Kriegsman, K. W., Estevenon, P., Wei, N., Szenknect, S., Mesbah, A., Wu, D., Ewing, R. C., Dacheux, N., Guo, X.  
2020
- **Geologic Analysis of the Democratic People's Republic of Korea's Uranium Resources and Mines** *SCIENCE & GLOBAL SECURITY*  
Park, S., Puccioni, A., Tracy, C. L., Serbin, E., Ewing, R. C.  
2020
- **Predicting short-range order and correlated phenomena in disordered crystalline materials.** *Science advances*  
O'Quinn, E. C., Sickafus, K. E., Ewing, R. C., Baldinozzi, G., Neuefeind, J. C., Tucker, M. G., Fuentes, A. F., Drey, D., Lang, M. K.  
2020; 6 (35): eabc2758
- **Coffinite formation from UO<sub>2</sub>+x.** *Scientific reports*  
Szenknect, S., Alby, D., Lopez Garcia, M., Wang, C., Podor, R., Miserque, F., Mesbah, A., Duro, L., Zetterstrom Evins, L., Dacheux, N., Bruno, J., Ewing, R. C.  
2020; 10 (1): 12168
- **Particulate plutonium released from the Fukushima Daiichi meltdowns.** *The Science of the total environment*  
Kurihara, E., Takehara, M., Suetake, M., Ikehara, R., Komiya, T., Morooka, K., Takami, R., Yamasaki, S., Ohnuki, T., Horie, K., Takehara, M., Law, G. T., Bower, et al  
2020; 743: 140539
- **Structural evolution of Lu(2-x)Ce(x)Ti(2)O(7)pyrochlores under 400 keV Ne irradiation** *JOURNAL OF THE AMERICAN CERAMIC SOCIETY*  
Xia, Y., Yang, D., Chen, C., Hao, Y., Ewing, R. C., Li, Y.  
2020
- **Processing of Soft Magnetic Fine Powders Directly From As-Spun Partial Crystalline Fe <sub>77</sub> Ni <sub>5.5</sub> Co <sub>5.5</sub> Zr <sub>7</sub> B <sub>4</sub> Cu Ribbon via Ball Mill Without Devitrification** *IEEE TRANSACTIONS ON MAGNETICS*  
Thomas, S. V., Willard, M. A., Martone, A., Heben, M. J., Solomon, C., Welton, A., Boolchand, P., Ewing, R. C., Wang, C., Bud'ko, S. L., Shi, D.  
2020; 56 (6)
- **Acceptance of Distinguished Public Service Award of the Mineralogical Society of America for 2019** *AMERICAN MINERALOGIST*

- Ewing, R. C.  
2020; 105 (5): 774–75
- **Nanocrystallites via Direct Melt Spinning of Fe<sub>77</sub>Ni<sub>5.5</sub>Co<sub>5.5</sub>Zr<sub>7</sub>B<sub>4</sub>Cu for Enhanced Magnetic Softness** *PHYSICA STATUS SOLIDIA-APPLICATIONS AND MATERIALS SCIENCE*  
Thomas, S. V., Willard, M. A., Martone, A., Heben, M. J., Solomon, V., Welton, A., Boolchand, P., Ewing, R. C., Wang, C., Bud'ko, S. L., Song, J., Shi, D.  
2020
  - **Annealing of ion tracks in apatite under pressure characterized in situ by small angle x-ray scattering.** *Scientific reports*  
Schauries, D., Afra, B., Mota-Santiago, P., Trautmann, C., Lang, M., Ewing, R. C., Kirby, N., Kluth, P.  
2020; 10 (1): 1367
  - **Facile diamond synthesis from lower diamondoids.** *Science advances*  
Park, S. n., Abate, I. I., Liu, J. n., Wang, C. n., Dahl, J. E., Carlson, R. M., Yang, L. n., Prakapenka, V. B., Greenberg, E. n., Devereaux, T. P., Jia, C. n., Ewing, R. C., Mao, et al  
2020; 6 (8): eaay9405
  - **Application of Electron Microscopy to Understanding Colloid-Facilitated Transport of Radionuclides at the Mayak Production Association Facility, Near Lake Karachai, Russia** *BEHAVIOR OF RADIONUCLIDES IN THE ENVIRONMENT I*  
Utsunomiya, S., Yokoo, H., Oki, T., Kawamoto, K., Takeda, A., Wang, H., Ewing, R. C., Kato, K., Konoplev, A., Kalmykov, S. N.  
2020: 177-200
  - **Integration of the Back-end of the Nuclear Fuel Cycle: An Overview** *MRS ADVANCES*  
Diaz-Maurin, F., Ewing, R. C.  
2020; 5 (5-6): 253–64
  - **Effects of irradiation temperature on the response of CeO<sub>2</sub>, ThO<sub>2</sub>, and UO<sub>2</sub> to highly ionizing radiation** *JOURNAL OF NUCLEAR MATERIALS*  
Cureton, W. E., Palomares, R., Tracy, C. L., O'Quinn, E. C., Walters, J., Zdorovets, M., Ewing, R. C., Toulemonde, M., Lang, M.  
2019; 525: 83–91
  - **Mechanical and structural properties of radiation-damaged allanite-(Ce) and the effects of thermal annealing** *PHYSICS AND CHEMISTRY OF MINERALS*  
Reissner, C. E., Bismayer, U., Kern, D., Reissner, M., Park, S., Zhang, J., Ewing, R. C., Shelyug, A., Navrotsky, A., Paulmann, C., Skoda, R., Groat, L. A., Poellmann, et al  
2019; 46 (10): 921–33
  - **Abundance and distribution of radioactive cesium-rich microparticles released from the Fukushima Daiichi Nuclear Power Plant into the environment.** *Chemosphere*  
Ikehara, R., Morooka, K., Suetake, M., Komiya, T., Kurihara, E., Takehara, M., Takami, R., Kino, C., Horie, K., Takehara, M., Yamasaki, S., Ohnuki, T., Law, et al  
2019; 241: 125019
  - **Radiation-damage in multi-layered zircon: Mechanical properties** *APPLIED PHYSICS LETTERS*  
Beirau, T., Oliver, W. C., Reissner, C. E., Nix, W. D., Poellmann, H., Ewing, R. C.  
2019; 115 (8)
  - **Anomalous behavior of nonequilibrium excitations in UO<sub>2</sub>** *PHYSICAL REVIEW B*  
Rittman, D. R., Teitelbaum, S. W., Reis, D. A., Mao, W. L., Ewing, R. C.  
2019; 99 (13)
  - **Phase transformations of Al-bearing high-entropy alloys Al<sub>x</sub>CoCrFeNi (x=0, 0.1, 0.3, 0.75, 1.5) at high pressure** *APPLIED PHYSICS LETTERS*  
Wang, C., Tracy, C. L., Park, S., Liu, J., Ke, F., Zhang, F., Yang, T., Xia, S., Li, C., Wang, Y., Zhang, Y., Mao, W. L., Ewing, et al  
2019; 114 (9)
  - **Disorder in M(n+1)AX(n) phases at the atomic scale** *NATURE COMMUNICATIONS*  
Wang, C., Yang, T., Tracy, C. L., Lu, C., Zhang, H., Hu, Y., Wang, L., Qi, L., Gu, L., Huang, Q., Zhang, J., Wang, J., Xue, et al  
2019; 10
  - **Evolution and Structure of the Scientific Basis for Nuclear Waste Management** *MRS ADVANCES*  
Diaz-Maurin, F., Sun, H. C., Yu, J., Ewing, R. C.  
2019; 4 (17-18): 959–64

- **Dissolution of radioactive, cesium-rich microparticles released from the Fukushima Daiichi Nuclear Power Plant in simulated lung fluid, pure-water, and seawater.** *Chemosphere*  
Suetake, M. n., Nakano, Y. n., Furuki, G. n., Ikehara, R. n., Komiya, T. n., Kurihara, E. n., Morooka, K. n., Yamasaki, S. n., Ohnuki, T. n., Horie, K. n., Takehara, M. n., Law, G. T., Bower, et al  
2019; 233: 633–44
- **Probabilistic Performance Assessment vs. the Safety Case Approach** *MRS ADVANCES*  
Diaz-Maurin, F., Ewing, R. C.  
2019; 4 (17-18): 987–92
- **Mission Impossible? Socio-Technical Integration of Nuclear Waste Geological Disposal Systems** *SUSTAINABILITY*  
Diaz-Maurin, F., Ewing, R. C.  
2018; 10 (12)
- **Grain size effects on irradiated CeO<sub>2</sub>, ThO<sub>2</sub>, and UO<sub>2</sub>** *ACTA MATERIALIA*  
Cureton, W. F., Palomares, R. I., Walters, J., Tracy, C. L., Chen, C., Ewing, R. C., Baldinozzi, G., Lian, J., Trautmann, C., Lang, M.  
2018; 160: 47–56
- **A Critical Review of Existing Criteria for the Prediction of Pyrochlore Formation and Stability** *INORGANIC CHEMISTRY*  
Fuentes, A. F., Montemayor, S. M., Maczka, M., Lang, M., Ewing, R. C., Amador, U.  
2018; 57 (19): 12093–105
- **Isotopic signature and nano-texture of cesium-rich micro-particles: Release of uranium and fission products from the Fukushima Daiichi Nuclear Power Plant**  
Imoto, J., Ochiai, A., Suetake, M., Ikehara, R., Horie, K., Takehara, M., Yamasaki, S., Ohnuki, T., Law, G., Grambow, B., Ewing, R., Utsunomiya, S.  
AMER CHEMICAL SOC.2018
- **Uranium dioxides and debris fragments released to the environment with cesium-rich microparticles from the Fukushima Daiichi Nuclear Power Plant**  
Utsunomiya, S., Ochiai, A., Suetake, M., Komiya, T., Yamasaki, S., Law, G., Grambow, B., Ohnuki, T., Ewing, R.  
AMER CHEMICAL SOC.2018
- **Novel Method of Quantifying Radioactive Cesium-Rich Microparticles (CsMPs) in the Environment from the Fukushima Daiichi Nuclear Power Plant** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*  
Ikehara, R., Suetake, M., Komiya, T., Furuki, G., Ochiai, A., Yamasaki, S., Bower, W. R., Law, G. W., Ohnuki, T., Grambow, B., Ewing, R. C., Utsunomiya, S.  
2018; 52 (11): 6390–98
- **Radiation-damage-induced transitions in zircon: Percolation theory applied to hardness and elastic moduli as a function of density** *APPLIED PHYSICS LETTERS*  
Beirau, T., Nix, W. D., Ewing, R. C., Poellmann, H., Salje, E. H.  
2018; 112 (20)
- **The thermal stability and consolidation of perovskite variant Cs<sub>2</sub>SnCl<sub>6</sub> using spark plasma sintering** *JOURNAL OF THE AMERICAN CERAMIC SOCIETY*  
Scott, S. M., Zhu, W., Yao, T., Vienna, J. D., Ewing, R. C., Lian, J.  
2018; 101 (5): 2060–65
- **Radiation-induced effects on the mechanical properties of natural ZrSiO<sub>4</sub>: double cascade-overlap damage accumulation** *PHYSICS AND CHEMISTRY OF MINERALS*  
Beirau, T., Nix, W. D., Poellmann, H., Ewing, R. C.  
2018; 45 (5): 435–42
- **Measurement of UO<sub>2</sub> surface oxidation using grazing-incidence x-ray diffraction: Implications for nuclear forensics** *JOURNAL OF NUCLEAR MATERIALS*  
Tracy, C. L., Chen, C., Park, S., Davisson, M., Ewing, R. C.  
2018; 502: 68–75
- **Review of recent experimental results on the behavior of actinide-bearing oxides and related materials in extreme environments** *PROGRESS IN NUCLEAR ENERGY*  
Tracy, C. L., Lang, M., Zhang, F., Park, S., Palomares, R. I., Ewing, R. C.  
2018; 104: 342–58
- **Radiation-induced disorder in compressed lanthanide zirconates** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*  
Park, S., Tracy, C. L., Zhang, F., Park, C., Trautmann, C., Tkachev, S. N., Lang, M., Maoah, W. L., Ewing, R. C.

2018; 20 (9): 6187–97

- **Uranium Dioxides and Debris Fragments Released to the Environment with Cesium-Rich Microparticles from the Fukushima Daiichi Nuclear Power Plant** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*  
Ochiai, A., Imoto, J., Suetake, M., Komiya, T., Furuki, G., Ikehara, R., Yamasaki, S., Law, G. W., Ohnuki, T., Grambow, B., Ewing, R. C., Utsunomiya, S.  
2018; 52 (5): 2586–94
- **A(2)TiO(5) (A = Dy, Gd, Er, Yb) at High Pressure** *INORGANIC CHEMISTRY*  
Park, S., Rittman, D. R., Tracy, C. L., Chapman, K. W., Zhang, F., Park, C., Tkachev, S. N., O'Quinn, E., Shamblin, J., Lang, M., Mao, W. L., Ewing, R. C.  
2018; 57 (4): 2269–77
- **Initial stages of ion beam-induced phase transformations in Gd<sub>2</sub>O<sub>3</sub> and Lu<sub>2</sub>O<sub>3</sub>** *APPLIED PHYSICS LETTERS*  
Chen, C., Tracy, C. L., Wang, C., Lang, M., Ewing, R. C.  
2018; 112 (7)
- **Swift-heavy ion irradiation response and annealing behavior of A(2)TiO(5) (A = Nd, Gd, and Yb)** *JOURNAL OF SOLID STATE CHEMISTRY*  
Park, S., Tracy, C. L., Zhang, F., Palomares, R. I., Park, C., Trautmann, C., Lang, M., Mao, W. L., Ewing, R. C.  
2018; 258: 108–16
- **Role of the X and n factors in ion-irradiation induced phase transformations of M(n+1)AX(n) phases** *ACTA MATERIALIA*  
Wang, C., Yang, T., Tracy, C. L., Xiao, J., Liu, S., Fang, Y., Yan, Z., Ge, W., Xue, J., Zhang, J., Wang, J., Huang, Q., Ewing, et al  
2018; 144: 432–46
- **Similar local order in disordered fluorite and aperiodic pyrochlore structures** *ACTA MATERIALIA*  
Shamblin, J., Tracy, C. L., Palomares, R. I., O'Quinn, E. C., Ewing, R. C., Neufeind, J., Feygenson, M., Behrens, J., Trautmann, C., Lang, M.  
2018; 144: 60–67
- **Phase transformation pathways of ultrafast-laser-irradiated Ln(2)O(3) (Ln = Er-Lu)** *PHYSICAL REVIEW B*  
Rittman, D. R., Tracy, C. L., Chen, C., Solomon, J. M., Asta, M., Mao, W. L., Yalisove, S. M., Ewing, R. C.  
2018; 97 (2)
- **Lanthanide stannate pyrochlores (Ln(2)Sn(2)O(7); Ln = Nd, Gd, Er) at high pressure** *JOURNAL OF PHYSICS-CONDENSED MATTER*  
Turner, K. M., Tracy, C. L., Mao, W. L., Ewing, R. C.  
2017; 29 (50)
- **Gauging the risk from nuclear waste** *NATURE*  
Ewing, R. C.  
2017; 552 (7683): 31
- **In situ TEM observation of alpha-particle induced annealing of radiation damage in Durango apatite** *SCIENTIFIC REPORTS*  
Li, W., Shen, Y., Zhou, Y., Nan, S., Chen, C., Ewing, R. C.  
2017; 7: 14108
- **Radioactive waste forms for the future**  
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