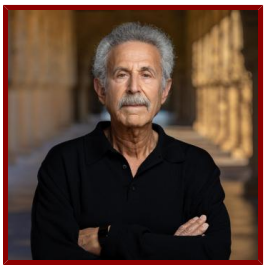
Stanford



Edward I. Solomon

Monroe E. Spaght Professor of Chemistry, Emeritus

CONTACT INFORMATION

- **Alternate Contact**

  Sippy Baniya Roberson - Administrative Associate

  Email sbaniya@stanford.edu

  Tel (650) 723-4313

Bio

BIO

Professor Edward Solomon's research spans the fields of physical-inorganic, bioinorganic, and theoretical-inorganic chemistry. His work focuses on spectroscopic elucidation of the electronic structure of transition metal complexes and its contribution to reactivity. He has developed new spectroscopic and electronic structure methods and applied these to active sites in catalysis. He has made significant contributions to our understanding of metal sites involved in electron and oxo transfer, copper sites involved in O2 binding, activation and reduction to water, in structure/function correlations over non-heme iron enzymes, and in the correlation of biological to heterogeneous catalysis.

Edward I. Solomon grew up in North Miami Beach, Florida, received his Ph.D. at Princeton (1972) and was a postdoctoral fellow at The Ørsted Institute in Denmark and at Caltech. He started his career at MIT in late 1975, became a full professor in 1981, and joined the faculty at Stanford in 1982 where he is now the Monroe E. Spaght Professor of Humanities and Sciences and Professor of Photon Science at SLAC National Accelerator Laboratory. He has been a visiting professor in France, Argentina, Japan, China, India, Australia and Brazil. He has received ACS National Awards in Inorganic Chemistry, Distinguished Service in the Advancement of Inorganic Chemistry, the Alfred Bader Award in Bioinorganic or Bioorganic Chemistry, the Ira Remsen Award, and the Kosolapoff Award, the Centenary Medal from the Royal Society of Chemistry (UK), the Wheland Medal from the University of Chicago, the Bailar Medal from the University of Illinois, the Frontiers in Biological Chemistry Award from the Max-Planck- Institute (Mülheim), the Chakravorty Award from the Chemical Research Society of India and the Dean's Award for Distinguished Teaching at Stanford among others. He is a member of the National Academy of Sciences, the American Academy of Arts and Sciences and a Fellow in American Association for the Advancement of Science and in the American Chemical Society.

The Solomon lab uses both experimental and theoretical techniques to define the electronic and geometric structures of biologically- and catalytically-relevant transition metal sites, with the goal of applying insights into electronic structure to obtain a detailed understanding of reactivity and function. This research utilizes a wide range of spectroscopic, theoretical, and chemical techniques to probe structure/function relationships, gain mechanistic insight, and address fundamental questions of relevance to chemistry and biology. The systems under study can be divided into five general areas:

– Electron Transfer Sites

– Copper Active Sites in Biology

– Mononuclear Non-Heme Iron Enzymes: Structure/Function Correlation

– Binuclear Non-Heme Iron Enzymes: Dioxygen Binding and Activation

– Correlations from Biological to Heterogenous Catalysis

ACADEMIC APPOINTMENTS

- Professor Emeritus, Chemistry
- Member, Bio-X
- Faculty Fellow, Sarafan ChEM-H

ADMINISTRATIVE APPOINTMENTS

- Affiliated Faculty Member and Researcher, Stanford Precourt Institute for Energy, (2013- present)
- Member, Digestive Disease Center, Stanford Medical School, (2005- present)
- Professor of Photon Science, Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory, (2005- present)
- Affiliated Faculty Member, Stanford-NIH Graduate Training Program in Biotechnology, (1993-2010)
- Faculty Member, Stanford Biophysics Program, (1990- present)

HONORS AND AWARDS

- Member, National Academy of Sciences (2005)
- Fellow, American Academy of Arts and Sciences (1998)
- Fellow, inaugural class, American Chemical Society (2009)
- Fellow, American Association for the Advancement of Science (1981)
- Alfred Bader Award in Bioinorganic or Bioorganic Chemistry, American Chemical Society (2016)
- ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry, American Chemical Society (2006)
- ACS Award in Inorganic Chemistry, American Chemical Society (2001)
- Centenary Medal and Lectureship, Royal Society of Chemistry, UK (2003)
- Dean's Award for Distinguished Teaching, Stanford Univeristy (1990)
- Chakravorty Award & Lectureship, Chemical Research Society of India (2008)
- Fellow, Stanford ChEM-H Institute (2015)
- Honorary Member, Israel Chemical Society (2015)
- Kosolapoff Award, Auburn Section, American Chemical Society (2015)
- Issue dedicated to EIS, Coordination Chemistry Review (2012)
- Prof. Edward I. Solomon Award, ScienceJet (2011)
- Voice of Inorganic Chemisty, American Chemical Society (2011)
- Fellow, Japan Society of the Promotion of Science (2009, 2002, 1995)
- Visiting Scholar, National Science Council, Taiwan (2009)
- Issue dedicated to EIS, Inorganica Chimica Acta (2008)
- Bailar Medal, University of Illinois (2007)
- Thomas Chemistry Scholar, University of Missouri - Columbia (2007)
- Highly Cited Researcher, Institute for Scientific Information (2005)

- NIH MERIT Award, National Institutes of Health (2002, 1995)
- Frontiers in Biological Chemistry Award and Lectureship, MPI, Mülheim (2001)
- G. W. Wheland Medal, University of Chicago (2000)
- Invited Professor, Tata Institute, Bombay, India (2000)
- Golden Jubilee Invited Professor, TATA Institute, Mumbai, India (1996)
- Remsen Award, Maryland ACS and Johns Hopkins University (1994)
- Invited Professor, Tokyo Institute of Technology (1992)
- First Monroe E. Spaght Professor of Chemistry, Stanford University (1991)
- Invited Professor, Universite de Paris, Orsay (1987)
- Creativity Extension, National Science Foundation (1985-7)
- Young Faculty Award, General Electric (1979-80)
- Young Faculty Award, Dupont (1979-80)
- Fellow, Alfred P. Sloan Foundation (1976-79)
- Young Faculty Award, General Electric (1976-77)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editorial Board Member, Chemical Reviews (1990 - present)
- Editorial Advisory Board Member, Biochemistry (2008 - present)
- Editorial Board Member, Inorganica Chimica Acta (1980 - present)
- Editorial Board Member, Journal of Inorganic Biochemistry (1991 - present)
- Editorial Board Member, Coordination Chemistry Reviews (1996 - present)
- Editorial Board Member, Indian Journal of Chemistry (2001 - present)
- Editorial Board Member, Encyclopedia of Inorganic and Bioinorganic Chemistry (2012 - present)
- Editorial Board Member, International Journal of Inorganic Chemistry (2008 - present)
- Editorial Board Member, Central European Journal of Chemistry/Open Chemistry (2003 - present)
- Editorial Board Member, Chemistry Central Journal (2006 - present)
- Editorial Board Member, Open Access Books Versita (2012 - present)
- Editorial Board Member, Journal of Thermodynamics & Catalysis (2011 - present)
- Editorial Board Member, Current Inorganic Chemistry (2010 - present)
- Editorial Board Member, Open Inorganic Chemistry Journal (2007 - present)
- Editorial Board Member, Metal Based Drugs (2006 - 2011)
- Member, Society of Biological Inorganic Chemistry (1996 - present)
- Member, International EPR Society (1996 - present)
- Editorial Board Member, Journal of Biological Inorganic Chemistry (1995 - 2003)
- Editorial Board Member, Chemistry & Biology (1993 - 2004)
- Editorial Board Member, Chemtracts Inorganic Chemistry (1992 - 2009)
- Associate Editor, Inorganic Chemistry (1985 - 2015)

PROFESSIONAL EDUCATION

- Postdoc, California Inst. of Technology, Pasadena, CA , Bioinorganic (H. Gray) (1975)

- Postdoc, University of Copenhagen (H.C. Ørsted Inst.), Denmark , Phys. Inorg. (C.Ballhausen) (1974)
- Postdoc, Princeton University, Princeton, N.J. , Chem. Phys. (D. McClure) (1973)
- PhD, Princeton University, Princeton, N.J. , Phys. Chem (1972)
- M.S., Princeton University, Princeton, N.J , Phys. Chem (1970)
- B.S., Rensselaer Polytechnic Institute, Troy, NY , Chemistry (1968)

LINKS

- The Solomon Laboratory: https://web.stanford.edu/group/solomon/home.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Professor Solomon's research spans the fields of physical-inorganic and bioinorganic chemistry, emphasizing the application of a wide variety of spectroscopic and computational methods to determine the electronic structure of transition metal complexes. Research is directed toward both high symmetry small molecule complexes to define in detail electronic structure contributions to chemical and physical properties, and metal ion active sites in catalysis to understand their unusual spectral features in terms of electronic and geometric structure and to evaluate these structural contributions to reactivity. Many studies focus on fundamental problems in bioinorganic chemistry. Areas of present interest include: 1) Electronic structure contributions to electron transfer in copper, iron-sulfur and heme sites; 2) O2 binding, activation, and reduction by Cu cluster active sites; 3) Structure/function correlations over non-heme iron enzymes; 4) Development of new spectroscopic and electronic structure methods in bioinorganic chemistry; and 5) Correlation of biological to heterogeneous catalysis.

Teaching

COURSES

2024-25

- Advanced Inorganic Chemistry: CHEM 251 (Aut)

2023-24

- Bio-Inorganic Chemistry: CHEM 257 (Aut)

2022-23

- Advanced Inorganic Chemistry: CHEM 251 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Hannah Bartels, Caravaggio Caniglia, Jamie Cleron, Shuri Francis, Edward Mu, Alison Shad, Alex Su, Clara Zwanziger

Postdoctoral Faculty Sponsor

Laura Elmendorf, Thomas Lin, Andy Nguy, Suman Patra, Max Waters

Doctoral Dissertation Advisor (AC)

Maggie Brueggemeyer, Robert Gipson

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biophysics (Phd Program)

Publications

PUBLICATIONS

- **Reactive Trapping of Dilute Methane Emissions by Surface Oxygen Intermediates on Copper Zeolites for Total Oxidation to CO₂** *ACS CATALYSIS*
  Ma, J., Plessers, D., Elmendorf, L. D., Heyer, A. J., Ye, Y., Solomon, E. I., Schoonheydt, R. A., Sels, B. F., Bols, M. L.
  2026
- **Reactive Trapping of Dilute Methane Emissions by Surface Oxygen Intermediates on Copper Zeolites for Total Oxidation to CO2.** *ACS catalysis*
  Ma, J., Plessers, D., Elmendorf, L. D., Heyer, A. J., Ye, Y., Solomon, E. I., Schoonheydt, R. A., Sels, B. F., Bols, M. L.
  2026
- **Cooperativity Between Free Radicals Promotes Selective Methane Oxidation.** *Joule*
  Wan, G., Heyer, A. J., Sun, E., Xie, C., Solomon, E. I., Majumdar, A.
  2026; 10 (4)
- **Metal-centered X-ray absorption and emission spectroscopy of iron corroles: implications for ligand non-innocence** *CHEMICAL SCIENCE*
  Guo, M., Alemayehu, A. B., Braun, A., Lee, S., Sokaras, D., Solomon, E. I., Ghosh, A., Kroll, T.
  2026
- **Metal-centered X-ray absorption and emission spectroscopy of iron corroles: implications for ligand non-innocence.** *Chemical science*
  Guo, M., Alemayehu, A. B., Braun, A., Lee, S. J., Sokaras, D., Solomon, E. I., Ghosh, A., Kroll, T.
  2026
- **Impact of N-terminal acetylation on Cu(I) coordination by alpha synuclein protein.** *Journal of inorganic biochemistry*
  Arcos-López, T., Lim, H., Hedman, B., Hodgson, K. O., Vela, A., Fernández-Outón, C. O., Solomon, E. I., Quintanar, L.
  2026; 278: 113229
- **Electronic Structure Contributions to the Reactivity of Mononuclear FeIV-Oxo Intermediates.** *Accounts of chemical research*
  Braun, A., Solomon, E. I.
  2025
- **Isolation of a Terminal Cobalt Nitride in a Metal-Organic Framework.** *Journal of the American Chemical Society*
  Börgel, J., Removski, N., Taylor, J. W., Hasanbasri, Z., Chakarawet, K., Heyer, A. J., Smith, P. W., Zakaria, N. I., Ngo, D. X., Klein, R. A., Paley, M. V., Allen, V. R., Dun, et al
  2025
- **Corrigendum to 'Activating metal sites for electron transfer and catalysis' [Journal of Inorganic Biochemistry vol 272 (2025) 113009].** *Journal of inorganic biochemistry*
  Solomon, E. I., Gipson, R. R.
  2025: 113136
- **A formal FeIII/V redox couple in an intercalation electrode.** *Nature materials*
  Ramachandran, H., Mu, E. W., Lomeli, E. G., Braun, A., Goto, M., Hsu, K. H., Liu, J., Jiang, Z., Lim, K., Busse, G. M., Moritz, B., Kas, J. J., Vinson, et al
  2025
- **Action painting under spectroscopic light: Excited-state exchange interactions behind the vibrant blue in Jackson Pollock's Number 1A, 1948.** *Proceedings of the National Academy of Sciences of the United States of America*
  Heyer, A. J., Haddad, A., Scott, R., Kowach, G., Solomon, E. I.
  2025; 122 (39): e2513166122
- **Isolation of Diamond Spin Chains in a Layered Halide Perovskite Heterostructure.** *Journal of the American Chemical Society*
  Caniglia, C. D., Li, Y., Wen, J., Brueggemeyer, M. T., Lee, Y. S., Solomon, E. I., Fisher, I. R., Karunadasa, H. I.
  2025
- **Activating metal sites for electron transfer and catalysis.** *Journal of inorganic biochemistry*
  Solomon, E. I., Gipson, R. R.

2025; 272: 113009

- **Description of the Electronic Structure of Oxyhemoglobin Using Fe L-Edge X-ray Absorption Spectroscopy.** *Journal of the American Chemical Society*
  Braun, A., Titus, C. J., Gee, L. B., Baker, M. L., Waters, M. D., Yan, J. J., Lee, S. J., Nordlund, D., Doriese, W. B., O'Neil, G. C., Schmidt, D. R., Swetz, D. S., Ullom, et al
  2025
- **Mechanism of O2 Activation and Cysteine Oxidation by the Unusual Mononuclear Cu(I) Active Site of the Formylglycine-Generating Enzyme.** *ACS central science*
  Kipouros, I., Lim, H., Appel, M. J., Meier, K. K., Hedman, B., Hodgson, K. O., Bertozzi, C. R., Solomon, E. I.
  2025; 11 (5): 683-693
- **Mechanism of O₂ Activation and Cysteine Oxidation by the Unusual Mononuclear Cu(I) Active Site of the Formylglycine-Generating Enzyme** *ACS CENTRAL SCIENCE*
  Kipouros, I., Lim, H., Appel, M. J., Meier, K. K., Hedman, B., Hodgson, K. O., Bertozzi, C. R., Solomon, E. I.
  2025
- **Nature of the Reactive Biferric Peroxy Intermediate P' in the Arylamine Oxygenases and Related Binuclear Fe Enzymes.** *Journal of the American Chemical Society*
  Böttger, L. H., DeWeese, D. E., Iyer, S. R., Komor, A. J., Rogers, M. S., Sutherlin, K., Jacobs, A. B., Yoda, Y., Kitao, S., Kobayashi, Y., Zhao, J., Alp, E. E., Saito, et al
  2025
- **Spectroscopy and crystallography define carotenoid oxygenases as a new subclass of mononuclear non-heme FeII enzymes.** *The Journal of biological chemistry*
  DeWeese, D. E., Everett, M. P., Babicz, J. T., Daruwalla, A., Solomon, E. I., Kiser, P. D.
  2025: 108444
- **Experimental electronic structures of the FeIV=O bond in S=1 heme vs. nonheme sites: Effect of the porphyrin ligand.** *Proceedings of the National Academy of Sciences of the United States of America*
  Braun, A., Gee, L. B., Waters, M. D., Jose, A., Baker, M. L., Mara, M. W., Babicz, J. T., Ehudin, M. A., Quist, D. A., Zhou, A., Kroll, T., Titus, C. J., Lee, et al
  2025; 122 (8): e2420205122
- **Coupled binuclear copper sites in biology: An experimentally-calibrated computational perspective** *COORDINATION CHEMISTRY REVIEWS*
  Stanczak, A., Kipouros, I., Eminger, P., Dunietz, E. M., Solomon, E. I., Rulisek, L.
  2025; 525
- **Coupled Binuclear Copper Sites in Biology: An Experimentally-Calibrated Computational Perspective.** *Coordination chemistry reviews*
  Stańczak, A., Kipouros, I., Eminger, P., Dunietz, E. M., Solomon, E. I., Rulíšek, L.
  2025; 525
- **Synthesis, Structure, and Redox Reactivity of Ni Complexes Bearing a Redox and Acid-Base Non-innocent Ligand with NiII, NiIII, and NiIV Formal Oxidation States.** *Journal of the American Chemical Society*
  Karmalkar, D. G., Lim, H., Sundararajan, M., Lee, Y. M., Seo, M. S., Bae, D. Y., Lu, X., Hedman, B., Hodgson, K. O., Kim, W. S., Lee, E., Solomon, E. I., Fukuzumi, et al
  2025
- **Experimental Definition of the S = 1 π vs S = 2 σ Reactivity and S = 2 Character in the Ground State of an S = 1 FeIVO Complex.** *Journal of the American Chemical Society*
  Braun, A., Gee, L. B., Waters, M. D., Baker, M. L., Mara, M. W., Zhou, A., Kroll, T., Nordlund, D., Sokaras, D., Hedman, B., Hodgson, K. O., Que, L., Solomon, et al
  2024
- **Spectroscopic Investigation of the Role of Water in Copper Zeolite Methane Oxidation.** *Journal of the American Chemical Society*
  Heyer, A. J., Ma, J., Plessers, D., Braun, A., Bols, M. L., Rhoda, H. M., Schoonheydt, R. A., Sels, B. F., Solomon, E. I.
  2024
- **Spectroscopic definition of ferrous active sites in non-heme iron enzymes.** *Methods in enzymology*
  Solomon, E. I., Gipson, R. R.

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- **Intramolecular Phenolic H-Atom Abstraction by a N3ArOH Ligand-Supported (mu-eta2:eta2-Peroxo)dicopper(II) Species Relevant to the Active Site Function of oxy-Tyrosinase.** *Journal of the American Chemical Society*
  Panda, S., Phan, H., Dunietz, E. M., Brueggemeyer, M. T., Hota, P. K., Siegler, M. A., Jose, A., Bhadra, M., Solomon, E. I., Karlin, K. D.
  2024
- **Coordination Variations within Binuclear Copper Dioxygen-Derived (Hydro)Peroxo and Superoxo Species; Influences upon Thermodynamic and Electronic Properties.** *Journal of the American Chemical Society*
  Hota, P. K., Jose, A., Panda, S., Dunietz, E. M., Herzog, A. E., Wojcik, L., Le Poul, N., Belle, C., Solomon, E. I., Karlin, K. D.
  2024
- **In SituUV-Vis-NIR Absorption Spectroscopy and Catalysis.** *Chemical reviews*
  Bols, M. L., Ma, J., Rammal, F., Plessers, D., Wu, X., Navarro-Jaen, S., Heyer, A. J., Sels, B. F., Solomon, E. I., Schoonheydt, R. A.
  2024
- **Magnetic Exchange Coupling in Zeolite Copper Dimers and Its Contribution to Methane Activation.** *Journal of the American Chemical Society*
  Heyer, A. J., Plessers, D., Ma, J., Snyder, B. E., Schoonheydt, R. A., Sels, B. F., Solomon, E. I.
  2024
- **Experimental Evidence and Mechanistic Description of the Phenolic H-Transfer to the Cu2O2 Active Site of oxy-Tyrosinase.** *Journal of the American Chemical Society*
  Kipouros, I., Stańczak, A., Dunietz, E. M., Ginsbach, J. W., Srnec, M., Rulíšek, L., Solomon, E. I.
  2023
- **Primary and Secondary Coordination Sphere Effects on the Structure and Function of S-Nitrosylating Azurin.** *Journal of the American Chemical Society*
  Van Stappen, C., Dai, H., Jose, A., Tian, S., Solomon, E. I., Lu, Y.
  2023
- **Stabilizing Au2+ in a mixed-valence 3D halide perovskite** *NATURE CHEMISTRY*
  Lindquist, K. P., Eghdami, A., Deschene, C. R., Heyer, A. J., Wen, J., Smith, A. G., Solomon, E. I., Lee, Y. S., Neaton, J. B., Ryan, D. H., Karunadasa, H. I.
  2023
- **Stabilizing Au2+ in a mixed-valence 3D halide perovskite.** *Nature chemistry*
  Lindquist, K. P., Eghdami, A., Deschene, C. R., Heyer, A. J., Wen, J., Smith, A. G., Solomon, E. I., Lee, Y. S., Neaton, J. B., Ryan, D. H., Karunadasa, H. I.
  2023
- **X-ray Spectroscopic Study of the Electronic Structure of a Trigonal High-Spin Fe(IV)═O Complex Modeling Non-Heme Enzyme Intermediates and Their Reactivity.** *Journal of the American Chemical Society*
  Braun, A., Gee, L. B., Mara, M. W., Hill, E. A., Kroll, T., Nordlund, D., Sokaras, D., Glatzel, P., Hedman, B., Hodgson, K. O., Borovik, A. S., Baker, M. L., Solomon, et al
  2023
- **Kβ X-ray Emission Spectroscopy of Cu(I)-Lytic Polysaccharide Monooxygenase: Direct Observation of the Frontier Molecular Orbital for H2O2 Activation.** *Journal of the American Chemical Society*
  Lim, H., Brueggemeyer, M. T., Transue, W. J., Meier, K. K., Jones, S. M., Kroll, T., Sokaras, D., Kelemen, B., Hedman, B., Hodgson, K. O., Solomon, E. I.
  2023
- **Nuclear Resonance Vibrational Spectroscopy Definition of Peroxy Intermediates in Catechol Dioxygenases: Factors that Determine Extra- versus Intradiol Cleavage.** *Journal of the American Chemical Society*
  Babicz, J. T., Rogers, M. S., DeWeese, D. E., Sutherlin, K. D., Banerjee, R., Bottger, L. H., Yoda, Y., Nagasawa, N., Saito, M., Kitao, S., Kurokuzu, M., Kobayashi, Y., Tamasaku, et al
  2023
- **Tuning the Type 1 Reduction Potential of Multicopper Oxidases: Uncoupling the Effects of Electrostatics and H-Bonding to Histidine Ligands.** *Journal of the American Chemical Society*
  Singha, A., Sekretareva, A., Tao, L., Lim, H., Ha, Y., Braun, A., Jones, S. M., Hedman, B., Hodgson, K. O., Britt, R. D., Kosman, D. J., Solomon, E. I.
  2023

- **Fenton-like Chemistry by a Copper(I) Complex and H2O2 Relevant to Enzyme Peroxygenase C-H Hydroxylation.** *Journal of the American Chemical Society*
  Kim, B., Brueggemeyer, M. T., Transue, W. J., Park, Y., Cho, J., Siegler, M. A., Solomon, E. I., Karlin, K. D.
  2023
- **Tuning Copper Active Site Composition in Cu-MOR through Co-Cation Modification for Methane Activation.** *ACS catalysis*
  Plessers, D., Heyer, A. J., Rhoda, H. M., Bols, M. L., Solomon, E. I., Schoonheydt, R. A., Sels, B. F.
  2023; 13 (3): 1906-1915
- **Tuning Copper Active Site Composition in Cu-MOR through Co-Cation Modification for Methane Activation** *ACS CATALYSIS*
  Plessers, D., Heyer, A. J., Rhoda, H. M., Bols, M. L., Solomon, E. I., Schoonheydt, R. A., Sels, B. F.
  2023: 1906-1915
- **Boronated Cyanometallates.** *Inorganic chemistry*
  McNicholas, B. J., Nie, C., Jose, A., Oyala, P. H., Takase, M. K., Henling, L. M., Barth, A. T., Amaolo, A., Hadt, R. G., Solomon, E. I., Winkler, J. R., Gray, H. B., Despagnet-Ayoub, et al
  2022
- **Particle Swarm Fitting of Spin Hamiltonians: Magnetic Circular Dichroism of Reduced and NO-Bound Flavodiiron Protein.** *Inorganic chemistry*
  Transue, W. J., Snyder, R. A., Caranto, J. D., Kurtz, D. M., Solomon, E. I.
  2022
- **Methane Activation by a Mononuclear Copper Active Site in the Zeolite Mordenite: Effect of Metal Nuclearity on Reactivity.** *Journal of the American Chemical Society*
  Heyer, A. J., Plessers, D., Braun, A., Rhoda, H. M., Bols, M. L., Hedman, B., Hodgson, K. O., Schoonheydt, R. A., Sels, B. F., Solomon, E. I.
  2022
- **New mechanistic insights into coupled binuclear copper monooxygenases from the recent elucidation of the ternary intermediate of tyrosinase.** *FEBS letters*
  Kipouros, I., Solomon, E. I.
  2022
- **Elucidation of the tyrosinase/O2/monophenol ternary intermediate that dictates the monooxygenation mechanism in melanin biosynthesis.** *Proceedings of the National Academy of Sciences of the United States of America*
  Kipouros, I., Stańczak, A., Ginsbach, J. W., Andrikopoulos, P. C., Rulíšek, L., Solomon, E. I.
  2022; 119 (33): e2205619119
- **Millisecond timescale reactions observed via X-ray spectroscopy in a 3D microfabricated fused silica mixer. Corrigendum.** *Journal of synchrotron radiation*
  Huyke, D. A., Ramachandran, A., Ramirez-Neri, O., Guerrero-Cruz, J. A., Gee, L. B., Braun, A., Sokaras, D., Garcia-Estrada, B., Solomon, E. I., Hedman, B., Delgado-Jaime, M. U., DePonte, D. P., Kroll, et al
  2022; 29 (Pt 3): 930
- **Evidence for H-bonding interactions to the mu-eta2:eta2-peroxide of oxy-tyrosinase that activate its coupled binuclear copper site.** *Chemical communications (Cambridge, England)*
  Kipouros, I., Stanczak, A., Culka, M., Andris, E., Machonkin, T. R., Rulisek, L., Solomon, E. I.
  2022
- **Spiers Memorial Lecture: activating metal sites for biological electron transfer.** *Faraday discussions*
  Solomon, E. I., Jose, A.
  2022
- **Second-Sphere Lattice Effects in Copper and Iron Zeolite Catalysis.** *Chemical reviews*
  Rhoda, H. M., Heyer, A. J., Snyder, B. E., Plessers, D., Bols, M. L., Schoonheydt, R. A., Sels, B. F., Solomon, E. I.
  1800
- **S K-edge XAS of CuII, CuI, and ZnII oxidized Dithiolene complexes: Covalent contributions to structure and the Jahn-Teller effect.** *Journal of inorganic biochemistry*
  Ha, Y., Dille, S. A., Braun, A., Colston, K., Hedman, B., Hodgson, K. O., Basu, P., Solomon, E. I.
  2022; 230: 111752

- **Electron Transfer to the Trinuclear Copper Cluster in Electrocatalysis by the Multicopper Oxidases.** *Journal of the American Chemical Society*
  Sekretareva, A., Tian, S., Gounel, S., Mano, N., Solomon, E. I.
  2021

- **Thermally stable manganese(III) peroxido complexes with hindered N3 tripodal ligands: Structures and their physicochemical properties.** *Journal of inorganic biochemistry*
  Fujisawa, K., Sakuma, S., Ikarugi, R., Jose, A., Solomon, E. I.
  2021; 225: 111597

- **Cage effects control the mechanism of methane hydroxylation in zeolites** *SCIENCE*
  Snyder, B. E. R., Bols, M. L., Rhoda, H. M., Plessers, D., Schoonheydt, R. A., Sels, B. F., Solomon, E.
  2021; 373 (6552): 327-+

- **Cage effects control the mechanism of methane hydroxylation in zeolites.** *Science (New York, N.Y.)*
  Snyder, B. E., Bols, M. L., Rhoda, H. M., Plessers, D., Schoonheydt, R. A., Sels, B. F., Solomon, E. I.
  2021; 373 (6552): 327-331

- **Mechanisms of O2 Activation by Mononuclear Non-Heme Iron Enzymes.** *Biochemistry*
  Solomon, E. I., DeWeese, D. E., Babicz, J. T.
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