ESTHER S. POSNER

Curriculum Vitae

Bayerisches Geoinstitut, Universität Bayreuth
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EDUCATION

Ph.D.	Geosciences, *magna cum laude* Bayerisches Geoinstitut, Universität Bayreuth, Germany	01.2013 – 04.2017
M.S.	Geosciences, *magna cum laude* University of Arizona, USA	08.2010 – 12.2012
B.S.	Geology, *magna cum laude* Grand Valley State University, USA	06.2006 – 05.2010
A.S.A.	Arts and Sciences, Honors Northwestern Michigan College, USA	06.2004 – 05.2006

EXPERIENCE

- **Academic Editor, Copy Editor, Journal Consultant** 01.2017 – present
  Elements (USA), Edanz Group (Japan), TopEdit (China), AsiaEdit (Hong Kong)
  Posner Editing Services (Owner)
  - Specialized in physical science, materials science, chemistry, physics, and engineering
  - Expert scientific editing of manuscripts, textbooks, technical reports, point-by-point reviewer response letters, grant proposals, theses/dissertations, and cover letters
  - Journal selection consultation

- **Post-Doctoral Research Fellow** 01.2020 – present
  Bayerisches Geoinstitut, Universität Bayreuth, Bayreuth, Germany
  - Material properties of liquid metals using first-principles molecular dynamic simulations
  - Diffusion experiments: laboratory supervision of M.S. students

- **Multi-anvil Laboratory Manager** 10.2017 – 10.2018*
  Bayerisches Geoinstitut, Universität Bayreuth, Bayreuth, Germany
  - Supervision/maintenance of machinery (five multi-anvil presses) and workspace
  - Supervision/training of users (researchers, students, visitors)
  - Management of internal/external supply and fabrication orders
  - Large-scale logistical and financial planning and documentation

- **Graduate Research Scientist** 08.2010 – 04.2017
  Bayerisches Geoinstitut, Universität Bayreuth, Bayreuth, Germany
  - Area of expertise: Experimental and theoretical geochemistry
  - Dissertation: Mass transport and structural properties of liquid iron alloys at high pressure

* Maternity leave (2019)

- Material synthesis, diffusion experiments, chemical analyses, first-principles molecular dynamic simulations, large-volume data processing
- Five first-author publications in international peer-reviewed journals, numerous oral and poster presentations at professional science conferences

Department of Geosciences, University of Arizona, Tucson, AZ, USA
- Area of expertise: Experimental petrology, mineralogy, crystal chemistry
- Thesis: Experiments and applications of chromium diffusion in spinel
- Sample preparation, high-vacuum doping, diffusion experiments, chemical analyses, SIMS depth-profiling, crystal structure refinements, synchrotron analyses
- Three first-author publications in international peer-reviewed journals

- **Mineralogy Instructor, Geoscience Tutor** 08.2010 – 12.2012
  Department of Geosciences, University of Arizona, Tucson, AZ, USA
  - Taught undergraduate geology majors fundamental mineralogy, hand sample identification
  - Course design, quiz/exam/project creation and grading
  - Tutored undergraduate students in introductory geology

- **Geology Research Intern** 06.2009 – 08.2009
  Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution, Washington D.C., USA
  - Measured FTIR spectra, data management, assisted with synchrotron measurements

- **Geology and Chemistry Tutor, Teacher Assistant** 09.2007 – 12.2009
  Grand Valley State University, Allendale, MI, USA
  - Tutored undergraduate students in introductory geology and chemistry

- **Chemistry Tutor** 05.2006 – 07.2007
  Northwestern Michigan College, Traverse City, MI, USA
  - Tutored undergraduate students in introductory chemistry

- **Advertising Manager, Reporter** 09.2004 – 01.2007
  White Pine Press, Traverse City, MI, USA
  - Managed advertising contracts/billing and customer relations
  - Managed advertisement design/placement with newspaper staff
  - Conducted research/interviews, wrote news articles and a bi-weekly column

- **Assistant Director, Coach** 12.2004 – 02.2007
  Leelanau Ski Club, Empire, MI, USA
  - Supported director with administrative tasks
  - Designed a monthly newsletter
  - Taught downhill skiing to youth ages 4 to 12

PEER-REVIEWED PUBLICATIONS

Posner ES, Steinle-Neumann G (submitted) Compositional effects in the liquid Fe–Ni–C system at high pressure. *Physics and Chemistry of Minerals.*

Smyth, JR, Wang F, Alp EE, Bell AS, **Posner ES**, Jacobsen SD (2022) Ferromagnesian jeffbenite synthesized at 15 GPa and 1200 °C. *American Mineralogist*. doi: 10.2138/am-2021-7852.

Rebaza, AM, **Posner ES**, Thielmann M, Rubie DC, Steinle-Neumann G. (2021) Experimental determination of carbon diffusion in liquid iron at high pressure. *American Mineralogist*. doi:

10.2138/am-2021-7644

Posner ES, Steinle-Neumann G (2019) Mass transport and structural properties of binary liquid iron alloys at high pressure. *Geochemistry, Geophysics, Geosystems* 20(7), 3556–3568.

Weber J, Wilson B, Koeberl C, O'Sullivan P, Donelick R, **Posner ES** (2019) Reconnaissance reassessment of the Late Eocene Oceanic unit, Barbados: microtektite geochemistry, zircon U-Pb geochronology, micropaleontology, and provenance. *Geological Society of America. Special Papers*, 246.

Posner ES, Schmickler B, Rubie DC (2018) Self-diffusion and chemical diffusion in peridotite melt at high pressure and implications for magma ocean viscosities. *Chemical Geology* 502, 66–75.

Posner ES, Steinle-Neumann G, Vlček V, Rubie DC (2017) Structural changes and anomalous self-diffusion of oxygen in liquid iron at high pressure. *Geophysical Research Letters* 44, 3526–3534.

Posner ES, Rubie DC, Frost DJ, Steinle-Neumann G (2017) Experimental determination of oxygen diffusion in liquid iron at high pressure. *Earth and Planetary Science Letters* 464, 116–123.

Posner ES, Rubie DC, Frost DJ, Vlček V, Steinle-Neumann G (2017) High *P-T* experiments and first principles calculations of the diffusion of Si and Cr in liquid iron. *Geochimica et Cosmochimica Acta* 203, 323–342.

Posner ES, Ganguly J, Hervig R (2016) Diffusion kinetics of Cr in spinel: Experimental studies and implications for ^{53}Mn-^{53}Cr cosmochronology. *Geochimica et Cosmochimica Acta* 175, 20–35.

Posner ES, Dera P, Downs RT, Lazarz JD, Irmen P (2014) High-pressure single-crystal X-ray diffraction study of jadeite and kosmochlor. *Physics and Chemistry of Minerals* 41, 695–707.

Origlieri MJ, Yang H, Downs RT, **Posner ES**, Domanik KJ, Pinch WW (2012) The crystal structure of bartelkeite, with a revised chemical formula, $PbFeGe^{VI}(Ge^{IV}_2O_7)(OH)_2{\cdot}H_2O$, isotypic with high-pressure $P2_1/m$ lawsonite. *American Mineralogist* 97, 1812–1815.

Posner ES, Konzett J, Frost DJ, Downs RT, Yang H (2012) High-pressure synthetic $(Na_{0.97}Mg_{0.03})(Mg_{0.43}Fe_{0.17}^{3+}Si_{0.40})Si_2O_6$, with six-coordinated silicon, isostructural with *P*2/*n* omphacite. *Acta Crystallographica* E68(2): i18.

EXPERIMENTAL AND ANALYTICAL SKILLS

High proficiency (can instruct others):

- Multi-anvil apparatus
- Piston cylinder apparatus
- Electron microprobe analyzer (EPMA)
- Scanning electron microscope (SEM)
- Gas-mixing furnace
- X-ray diffraction (XRD)
- Raman spectroscopy
- Optical microscope
- First-principles molecular dynamic simulations (FP-MD)

Moderate experience (can operate under guidance):

- Inductively coupled plasma mass spectroscopy (ICP-MS)
- Secondary ionization mass spectroscopy (SIMS)
- Fourier transform infrared spectroscopy (FTIR)
- Synchrotron X-Ray diffraction
- Diamond anvil cell

AWARDS

- **Mineral and Rock Physics Graduate Research Award** 2018
  American Geophysical Union (AGU)
- **1st Place Physics and Chemistry Science Slam** 2017
  Universität Bayreuth (JCF, jDPG)
- **Best Undergraduate Oral Presentation Award** 2008
  Geological Society of America, Evansville, IN, USA
- **Outstanding Geology Student of the Year** 2007–2008
  Grand Valley State University
- **History Department Award** 2006
  Northwestern Michigan College

SCHOLARSHIPS AND GRANTS

- European Association of Geochemistry Travel Bursary 2014
- ChevronTexaco Geology Fellowship 2011
- Science, Technology, Engineering, and Mathematics (STEM) Scholarship 2009
- North-Central Geological Society of America Undergraduate Research Grant 2009
- Michigan NASA Space Grant Consortium Fellowship 2008–2009
- Grand Rapids Community Foundation Scholarship 2008–2009
- Michigan Basin Geological Society Research Scholarship 2008
- Tremba Geology Scholarship 2008
- Grand Valley State University Geology Scholarship 2007
- Northwestern Michigan College Honors Scholarship 2006

INVITED TALKS

- **German Science Foundation (DFG) Late Accretion onto Terrestrial Planets Summer School,** Trechtinghausen, Germany, June 2018
- **Universität Bayreuth Interdisciplinary Workshop: Navigating Waves in Inner*Outer Space*Times**, Bayreuth, Germany, June 2018
- **American Geophysical Union (AGU)**, New Orleans, LA, USA, Dec. 2017
- **Bavarian Research Academy Commission Meeting**, Bayreuth, Germany, May 2017
- **Tucson Mineralogical Society**, Tucson, AZ, USA, Sep. 2012

LEADERSHIP

- **Research supervisor for 2 M.S. students, 1 B.S. student** 2018–2020
  Bayerisches Geoinstitut, Universität Bayreuth, Bayreuth, Germany
- **American Geophysical Union Student Representative** 2013–2016
  Volcanology, Geochemistry, Petrology Section
- **Women in Geosciences Discussion Group Founder, Coordinator** 2013–2016
  Universität Bayreuth, Bayreuth, Germany
- **Undergraduate Mentor, Founder of the Society of Meteorite Impact Related Geology** 2010–2012

University of Arizona, Tucson, AZ, USA

- **Undergraduate Mentor in the Southern Arizona Geosciences Union for Academics, Research and Outreach** 2010–2012
  University of Arizona, Tucson, AZ, USA
- **Geology Club President** 2008–2009
  Grand Valley State University, Allendale, MI, USA
- **Excellence in Science/Math Collaborative President, Founder** 2008–2009
  Grand Valley State University, Allendale, MI, USA
- **College of Liberal Arts and Science's Dean's Student Advisory Council** 2008–2009
  Grand Valley State University, Allendale, MI, USA
- **College of Liberal Arts and Science's Teaching Excellence Committee** 2008–2009
  Grand Valley State University, Allendale, MI, USA

LANGUAGES

- **English** Native Speaker
- **Portuguese** Fluent, 24 years of experience
- **Spanish** High Working Proficiency, 22 years of experience
- **German** High Working Proficiency, 9 years of experience