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VITA

ALEXANDRA NAVROTSKY

Regents Professor and Director, Materials of the Universe
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Education:

Bronx High School of Science, 1960
University of Chicago, 1963 (B.S.)
University of Chicago, 1964 (M.S.)
University of Chicago, 1967 (Ph.D.)

Area of Specialization: Solid State Chemistry, Ceramics, Physics and Chemistry of Minerals, Geochemistry

Professional Experience:

1967 – 1968	Research Associate, Technische Universität Clausthal, Germany, Institut fur Theoretische Huttenkunde
1968 – 1969	Research Associate, Pennsylvania State University, Dept. of Mineralogy and Geochemistry
1969 – 1974	Assistant Professor, Arizona State University, Dept. of Chemistry
1970 – 1971	Visiting Research Associate, University of Chicago, James Franck Institute
1972	Visiting Scientist, Technische Universität Clausthal, Germany
1974 – 1978	Associate Professor, Arizona State University, Dept. of Chemistry
1974	Visiting Scientist, Bell Telephone Laboratories
1975	Visiting Lecturer, Massachusetts Institute of Technology
1976	Visiting Associate Professor, University of California at Berkeley
1976 – 1977	Program Director for Chemical Thermodynamics, National Science Foundation
1978 – 1985	Professor, Arizona State University, Depts. of Chemistry and Geology
1981	Visiting Professor, State University of New York at Stony Brook
1984 – 1985	Director, Center for Solid State Science, Arizona State University
1985 – 1997	Professor, Princeton University, Dept. of Geological and Geophysical Sciences, Affiliate faculty, Dept. of Chemistry, Member, Princeton Materials Institute
1988 – 1991	Chair, Dept. of Geological and Geophysical Sciences, Princeton University
1988	Visiting Summer Faculty, I.B.M., T.J. Watson Research Center
1992 – 1997	Albert G. Blanke, Jr. Professor of Geological and Geophysical Sciences, Princeton University
1997 – 2019	Interdisciplinary Professor of Ceramic, Earth, and Environmental Materials Chemistry, University of California, Davis. Appointments in Departments of Chemical Engineering and Materials Science (home department); Chemistry; Land, Air and Water Resources; Geology
2001 – 2019	Edward Roessler Chair in Mathematical and Physical Sciences, UC Davis

2002 – 2019	Director of the NEAT ORU, UC Davis
2003 – 2019	Distinguished Professor, UC Davis
2013 – 2017	Interim Dean of Mathematical and Physical Sciences, College of Letters and Science, UC Davis
2019 – present	Professor, School of Molecular Sciences, and School for Engineering of Matter, Transport and Energy, Arizona State University
2019 – present	Director, Materials of the Universe, Arizona State University
2022 – present	Regents Professor, School of Molecular Sciences, and School of Engineering of Matter, Transport and Energy, Arizona State University

Professional Organizations and Honorary Societies:

Phi Beta Kappa
Sigma Xi
American Ceramic Society
American Chemical Society
American Geophysical Union
Mineralogical Society of America
Materials Research Society
Geochemical Society
National Academy of Sciences
International Union of Pure and Applied Chemistry
World Academy of Ceramics

Honors and Awards:

1973 – 1975	Alfred P. Sloan Fellowship
1981	Mineralogical Society of America Award, Fellow
1982 – 1983	Arizona State University, Graduate College Distinguished Research Award
1988	American Geophysical Union, Fellow
1991 – 1992	Mineralogical Society of America, Vice President
1992 – 1993	Mineralogical Society of America, President
1993	Elected to National Academy of Sciences
1995	Ross Coffin Purdy Award of the American Ceramic Society, in recognition of the most valuable contribution to ceramic technical literature, 1993
1995	Doctor Honoris Causa, Uppsala University, Sweden (Paris Geophysical Inst.)
1997	Geochemical Society, Fellow
1999	Kreeger-Wolf Visiting Scholar, Northwestern University
2000	Alexander M. Cruickshank Award, Gordon Conference
2000	Hugh M. Huffman Memorial Award, The Calorimetry Conference
2000	Ceramic Educational Council Outstanding Educator Award
2001	American Ceramic Society, Fellow
2001	American Ceramic Society, Best Paper Award of the Nuclear and Environmental Technology Division
2002	Benjamin Franklin Medal in Earth Science
2002	Highly Cited Researchers Award, ISI Thomson Scientific
2002	Mineralogical Society (Great Britain), Fellow
2002	Urey Medal of the European Association of Geochemistry
2005	Spriggs Phase Equilibria Award of the American Ceramic Society
2006	Rossini Lectureship Award, 19th International Conference on Chemical Thermodynamics, Boulder, Colorado
2006	Harry H. Hess Medal of the American Geophysical Union
2007	Sloan Faculty Distinguished Service Award - University of California, Davis

2007	Outstanding Engineering Senior Career Research Award - University of California, Davis
2008	Honorary Professor at School of Environmental Sciences and Urban Studies, Shenzhen Graduate School, Peking University, China
2009	Roebling Medal of Mineralogical Society of America
2009	Best University Paper Award, DOE Geoscience Grantee Meeting
2009	Honorary Professorship, Sichuan University, China
2009	International Union of Pure and Applied Chemistry, Fellow
2011	Elected to American Philosophical Society
2011	Featured Manuscript in the Journal of the American Ceramics Society - Thermochemistry of Lanthana- and Yttria-Doped Thoria
2012	Honorary Professor, Three Gorges University, Yichang China
2012	Cecil and Ida Green Senior Fellowship at the Geophysical Laboratory of the Carnegie Institute of Washington
2016	Victor M. Goldschmidt Award, Goldschmidt Conferences, Geochemical Society
2016	W. David Kingery Award, American Ceramic Society
2017	World Academy of Ceramics, Elected to Science Professional Member
2020	Jan Czochralski Award, European Materials Research Society
2020	Journal of the American Ceramic Society, Best Paper Award for paper entitled
2021	Jan Czochralski Award, European Materials Research Society
2022	Regents Professor, Arizona State University
2023	International Life in Universe Award, FLOGEN Star Outreach

Service:

"Thermodynamic Investigation of Lithium Borate Glasses and Crystals."

2020	American Ceramic Society, Distinguished Life Member
2020	Sigma Xi, Full Member
2020	Ranked #25 globally in materials science in "Updated science-wide author database of standardized citation indicators," published in PLOS BIOLOGY
2020	Best Oral Presentation (presented to Dr. Khansaa Al-Essa) for group paper entitled "Drop Solution Calorimetric Studies of Interface Enthalpy of Cubic Silver (I) Oxide (Ag_2O) Nanocrystals," work done in Navrotsky lab, 4th International Conference on Materials Sciences and Nanomaterials
2021	Best Oral Presentation (presented to Dr. Khansaa Al Essa) for group paper entitled "A Novelty Analytical Approach to Determine Oxidation States in Complex Refractory Oxides Containing Iron, Uranium, Cerium and Other Mixed Valence Cations" 5^{th} International Conference on Materials Sciences and Nanomaterials (ICMSN 2021) Virtual Conference
1976 – 1985	Physics and Chemistry of Minerals, Advisory Board
1977 – 1979	NASA: Subcommittee on Materials Processing in Space
1979 – 1981	NSF: Advisory Committee, Division of Materials Research
1980	Co-organizer, Conference on Structural Chemistry of Complex Solids, Castle Hot Springs, Arizona
1980 – 1987	Calphad Journal, Advisory Board
1981	National Science Foundation, Chair, Ad Hoc Oversight Review of Solid State Chemistry Program
1981 – 1983	American Mineralogist, Associate Editor
1981 – 1985	National Academy of Sciences, Committee on High Temperature Chemistry
1981 – 2000	Advances in Physical Geochemistry, Advisory Board
1982	Co-organizer (with P. Day) of U.S.-U.K. Workshop on Solid State Chemistry, Oxford, England
1982 – 1985	Councilor, Mineralogical Society of America

1983 – 1993	American Geophysical Union, Committee on Mineral Physics
1983	National Science Foundation, Panel on Visiting Professorship for Women
1983 – 1985	Mineralogical Society of America, Chair of 1984 MSA Award Committee, Chair of 1985 Mineralogy-Petrology Grant Committee
1984	National Science Foundation, Workshop on Materials Chemistry
1985	Co-organizer (with S. W. Kieffer) of Mineralogical Society of America Short Course, "Microscopic to Macroscopic - from Atomic Environments to Thermodynamic Properties," May 1985, Chestertown, MD
1985 – 1991	North American Editor, Physics and Chemistry of Minerals
1985 – 2000	Progress in Solid State Chemistry, Editorial Advisory Board
1986 – 1989	Stanford University, Earth Sciences Advisory Board
1986 – 2000	Series Editor, Oxford Monographs on Geology and Geophysics
1987	Convener, American Geophysical Union Chapman Conference on "Perovskite - A Structure of Great Interest to Geophysics and Materials Science," Bisbee AZ, October 1987
1988	Geophysical Laboratory, Carnegie Institution of Washington, Advisory Committee
1988	Local Organizing Committee, 11th International Symposium on the Reactivity of Solids, Princeton, NJ, June 1988
1989 – 1992	National Science Foundation, Advisory Committee on Earth Sciences
1990 – 1993	MIT Earth Sciences Advisory Committee
1990	National Science Foundation, Earth Sciences, Committee of Visitors, Geochemistry Program, Chair
1990	American Geophysical Union Fall Meeting, Symposium Convener "Mineral Physics of Materials, Near the Earth's Surface"
1991 – 1994	Harvard University, Department of Earth and Planetary Sciences, Visiting Committee
1991	National Science Foundation, Earth Sciences Committee of Visitors, Instrumentation, Chair
1991-1992	NSF Science and Technology Center for High Pressure Research (CHiPR), Executive Committees
1991	California Institute of Technology, Division of Geological Sciences, Visiting Committee
1992	Columbia University, Geological Sciences, Visiting Committee
1992	Spring American Geophysical Union Meeting, Symposium Co- Convener, "What Do We Really Know About the Mantle?"
1993 – 1994	Department of Energy Basic Energy Sciences Advisory Committee (BESAC)
1993 – 1996	American Geophysical Union, Bowie Medal Committee, Chair, 1996
1994	Convener, CSEDI Workshop on Mantle Models, North East, Maryland, May 1994
1995	Mineralogical Society of America, Roebling Medal Committee
1995 – 1997	NRC Board on Earth Sciences and Resources
1995	Organizer, Symposium on Mineral Thermodynamics, Goldschmidt Conference, State College, PA, May 1995
1995 – 1997	National Science Foundation, Geochemistry Panel
1996	National Science Foundation, MRSEC Panel

1996 – 1997	Review Committee for Institute of Geophysics and Planetary Physics (IGPP), University of California
1996 – 1997	Natural Materials Advisory Board Committee on Advanced Fibers for High Temperature Ceramic Applications
1996 – 1998	Organizing Committee, 12th International Zeolites Congress, Baltimore, MD, July 1998
1997	National Science Foundation, Earth Sciences Advisory Committee
1997	National Science Foundation, Earth Sciences Committee of Visitors, Instrumentation and Facilities Program, Chair
1998 – 2000	Journal of Materials Research, Principal Editor
1998	Arizona State University, MRSEC Advisory Committee
1998 - 1999	Geochemical Society, Board of Directors
1999 – 2005	Los Alamos National Laboratory, Earth and Environmental Science Divisional Review Committee
1999 – 2003	Sandia National Laboratory, Geoscience Advisory Committee
1999	Workshop on Mineral and Rock Physics, Organizer, Scottsdale, AZ, May 28-30, 1999
2000 – 2001	13th International Zeolite Conference, International Advisory Board, Montpelier, France
2000 – 2001	BES (Basic Energy Sciences), Council on Chemical Sciences
2001 – 2005	Los Alamos National Laboratory, Nuclear Materials Technology Division, Divisional Review Committee
2001	Co-organizer, Mineralogical Society of America Short Course on Nanoparticles in the Environment
2001	Co- Convener, Materials Research Society Symposium on Perovskites
2002	Co-organizer, NSF/DOE Workshop on Nanogeoscience
2002 – 2004	NRC Committee on Advanced Geochemical Methods for Managing Carbon
2002 – 2004	Science, Board of Reviewing Editors
2002 – 2003	Geochemical Society F.W. Clarke Award Committee
2003	Participant and Group Leader, USDA Workshop on Defining Agriculture Opportunities in Nanotechnology
2003 – 2008	Chemistry of Materials Editorial Advisory Board
2003 – 2004	Member, Nanotechnology Technical Advisory Group (TAG) for President's Council of Advisors on Science and Technology (PCAST)
2003 – 2006	Advisory Board, Environmental Molecular Science Institute, Notre Dame University
2005	Organizing Committee: International Conference on Perovskites – Properties and Applications
2006 – 2016	Science and Technology Committee, Los Alamos National Laboratory
2006	Phase Equilibria Program and Spriggs Phase Equilibria Award Subcommittees, The American Ceramic Society
2006 – 2008	Honors and Recognition Committee, American Geophysical Union
2006 – 2009	Finance Committee, Mineralogical Society of America
2006	Geo2000 – Geosciences Futures Committee, National Science Foundation

2007	Advisory Board Member of the 15th International Zeolite Conference, Beijing, China (15th IZC)
2007	Local Organizing Committee, XVIth International Symposium on the Reactivity of Solids, University of Minnesota
2007 – 2018	External Advisory Board, Delaware EPSCoR Research Infrastructure Improvement Program and the Center for Critical Zone Research
2007 – Present	"Master Scientist" on China III, Project with Sichuan University, Chengdu, China, Mountain Resources Engineering and Ecological Security
2008 – 2016	Science and Technology Committee, Los Alamos National Laboratory
2008 – 2011	AGU Honors and Recognition Committee
2009	Organizer, HTMC XIII, IUPAC Conference on High Temperature Materials Chemistry, Davis CA, Sept 2009
2009 – 2016	Science and Technology Committee, Lawrence Livermore National Laboratory
2009 – 2018	DOE Energy Frontier Research Center- Materials Science of Actinides, Executive Committee
2009 – 2014	DOE Energy Frontier Research Center- Nanoscale Controls on Geologic CO_2, P.I. Committee
2009 – 2018	DOE Energy Frontier Research Center on Extreme Environments, Advisory Board
2009 – 2014	DOE Energy Frontier Research Center on Fluid Interface Reactions, Structures, and Transport (FIRST), Advisory Board
2009 – 2014	DOE Energy Frontier Research Center for Inverse Design, Advisory Board
2010	UC Davis Chancellor's Blue Ribbon Committee on Research
2013 – 2014	International Program Committee member, Thermo of Minerology and Mineral Physics, 2014 Goldschmidt Conference
2015 – 2018	DOE Energy Frontier Research Center for Next Generation of Materials by Design: Incorporating Metastability, Advisory Board
2016	NSF Ceramics Program, Workshop on High Temperature Materials
2017	DOE Nuclear Energy (NE) Workshop on Molten Salt Reactors, Breakout Lead
2017	DOE Office of Science, Basic Research Needs in Future Nuclear Energy, Panel Lead
2017 - 18	NAS Committee on the Independent Assessment of Science and Technology for the Department of Energy Defense Environmental Cleanup Program
2018 - 19	University of California Presidential Appointee to the Board of Directors of the California Council on Science and Technology (CSST)
2018 - Present	ACS Earth and Space Chemistry, Editorial Advisory Board
2021 – Present	Russian Journal of Physical Chemistry A, Editorial Advisory Board
2021 – 2024	Proceedings of the National Academy of Sciences (USA), Editorial Board

Major Invited Lectures:

1985	Mineralogical Society of America, Short Course on Microscopic to Macroscopic
1986	Hoots Lecture, Stanford University
1986	Mineralogical Society of America, Short Course on Silicate Melts
1987	Mineralogical Society of America, Short Course on Thermodynamic Modeling

1992	Gordon Conference on Molten Metals and Melts
1995	Gordon Conference on Solid State Chemistry
1995	Gordon Conference on Zeolites
1995	Eyring Lectures, Arizona State University
1995	Mineralogical Society of America, Short Course on Silicate Melts
1996	NATO Advanced Study Institute on Actinides and the Environment
1996	50 Years of Materials Science at University of Pennsylvania Symposium
1996	Gordon Conference on High Temperature Chemistry
1997	Gordon Conference on Liquids
1998	Gordon Conference on Disordered Materials
1999	Kreeger-Wolf Lecture at Northwestern University
2001	Alexander M. Cruickshank Lecturer, Gordon Conference on High Temperature Materials
2002	Mineralogical Society of America Short Course on Nanoparticles in the Environment
2002	Franklin Medal in Earth Science Lecture
2003	Elizabeth C. Crosby Lecture Series, Materials Science and Engineering, University of Michigan
2004	Gordon Conference on Solid State Chemistry I
2004	Hassel Lecture, Norwegian Chemical Society, Oslo, Norway
2004	Gordon Conference on High Temperature Materials
2004	Gordon Conference on Ceramics
2004	University of Minnesota, Women in Science Lectures
2005	Goldschmidt Conference on Geochemistry, Urey Award Lecture
2005	Wohl Lecture, University of Delaware
2007	"The Nuclear Fuel Cycle: Fundamental Thermodynamic and Solid State Chemical Questions after Sixty Years," The Leroy Eyring Center for Solid State Science, Arizona State University
2008	Plenary Lecture: The 5th International Workshop on DV-Xα: The Advanced Related Experiments and Theories on Materials Science and X-ray Spectroscopy & the 21st Annual Meeting of the Society for DV-Xα Japan, Himeji, Japan.
2008	"Environment, Energy, Nanoscience," Working on Environmental Sciences in the 21st Century, Peking University, Beijing, China
2008	Plenary Lecture at the VII Brazilian Material Research Society Meeting
2009	Roebling Medal Lecture, Mineralogical Society of America
2010	Gordon Conference on High Temperature Materials, Processes, and Diagnostics, Colby College, ME
2010	Gordon Research Conference: High Temperature, Materials, Processes and Diagnostic, Waterville, ME
2010	Gordon Conference on Ceramics, Solid State Studies, Colby Sawyer College, NH
2011	SSI-18 International Conference on Solid State Ionics, Warszawa, Poland (invited lecture)

2011	Gordon Conference on Nanoporous Materials and Their Applications, Holderness, NH
2011	The 1st Central and Eastern European Conference of Thermal Analysis and Calorimetry Conference, Craiova, Romania, Plenary Lecture
2011	MS&T 2011 Conference, Columbus, OH
2011	Outstanding Women in Science Lecture, Indiana University, Bloomington, IN
2012	Invited Lecture, Los Alamos National Laboratory
2012	Cecil and Ida Green Lecture, Geophysical Laboratory of the Carnegie Institution of Washington
2013	Seaborg Lecture, Lawrence Berkeley National Laboratory
2013	William Mong Distinguished Lecture, University of Hong Kong
2013	Invited Lecture, International Conference of Physical Chemistry, Bucharest Romania
2013	Alfred R. Cooper Distinguished Lecture, The American Ceramic Society, MS&T 2013 Conference, Montreal, Quebec
2015	Symposium X – Frontiers of Materials Research Invited Speaker, “Energetics at the Nanoscale: Impacts for Geochemistry, the Environment, and Materials” Materials Research Society Spring Meeting
2016	Goldschmidt Award Lecture
2017	Institut de Chimie Séparative de Marcoule, France, Invited Lecture
2018	Master Distinguished Lecture, Shanghai Jiao Tong University, China
2018	CALPHAD 18 Conference, Mexico
2018	Goldschmidt Conference Keynote Speaker
2019	Heriot-Watt University, Edinburgh, Scotland, Invited Lecture
2019	Seaborg Seminar, Los Alamos National Laboratory
2019	Plenary Lecture, 14th International Conference on the Structure of Non-Crystalline Materials, Kobe, Japan
2020	Plenary Lecture, International Conference on Thermal Analysis and Calorimetry, Moscow, Russia (moved online due to COVID)
2020	Keynote, Materials Science and Engineering Congress, Darmstadt, Germany (moved online due to COVID)
2020	Invited Talk, Women of Distinction in Materials Science Online Workshop, Darmstadt, Germany
2021	24 Kalorimetrietage Traditional German Calorimetry Conference, Braunschweig, Germany, Virtual
2021	CALPHAD GLOBAL International Conference on Computer Coupling of Phase Diagrams and Thermochemistry, (virtual)
2021	10th International Workshop on Spinel Nitrides and Related Materials Graduate School MatCom-ComMat at Technishce Universität Darmstadt, Germany
2021	MS&T Conference, Columbus, OH
2021	Michigan Materials Research Institute (MMRI) Symposium, University of Michigan – Virtual
2022	Condensed Matter Seminar and Colloquium at the University of British Columbia, Virtual
2022	Paul F. McMillan Symposium, University College London, London

2022	XXIII International Conference on Chemical Thermodynamics in Russia, Kazan, Russia - Virtual
2022	International Research Conference on Structure and Thermodynamics of Oxides at High Temperature (STOHT), Phoenix, AZ
2022	MS&T Conference, Pittsburg, PA
2023	Critical Materials Institute Diversifying Supply, Virtual
2023	CMCC Mechanochemistry Discussion Speaker Series, NSF-funded Center for Mechanical Control of Chemistry, Virtual
2023	ICACC 23, Daytona Beach, FL
2023	2nd International Workshop on Theory Frontiers in Actinide Science: Chemistry, Santa Fe, NM
2023	Washington State University, Chem 537 Special Topics of Physical Chemistry, Virtual
2023	WSU and PNNL Presentations, Washington
2023	Netzsch Conference, Phoenix, AZ
2023	Lehigh Materials Symposium, Bethlehem, PA
2023	CALPHAD Conference, Boston
2023	Goldschmidt Conference, Germany
2023	Gordon Research Conference, Andover, NH
2023	10th International Workshop of Spinel Nitrides and Related Materials, Germany
2023	UTK and ORNL, Knoxville, TN
2023	MS&T 23 Conference, Columbus, OH
2023	University of Texas at Arlington, Keith Crandell Speaker Series, Arlington, TX
2023	Navrotsky International Symposium, Panama

Patents:

"Removal of Organic Structure Directing Agents from Inorganic Nano-Composite Materials," A. Navrotsky, A. N. Parikh, U.S. Pat. Appl. Publ., 17pp. (2004).

U.S. Patent No. 6,960,327 (Issued: November 1, 2005)
"Methods for Removing Organic Compounds from Nano-Compositic Materials"
(UC Case No. 2003-121-1)

U.S. Patent No. 7,141,857 (Issued: November 28, 2006)
"Semiconductor Structures and Methods of Fabricating Semiconductor Structures Comprising Hafnium Oxide Modified with Lanthanum, a Lanthanide-Series Metal, or a Combination Thereof"

ALEXANDRA NAVROTSKY

PUBLICATIONS - RESEARCH PAPERS

"Enthalpies of Mixing in Silver Bromide-Alkali Bromide and Thallium Chloride-Alkali Chloride Liquid Mixtures," L. S. Hersh, A. Navrotsky, and O. J. Kleppa, *J. Chem. Phys*., 42, 3752-3757 (1965).

"High-Temperature Calorimetry in Liquid Oxide Systems. III. The Enthalpy of Formation of Magnesium-Aluminum Spinel," A. Navrotsky and O. J. Kleppa, *Inorg. Chem*., 5, 192-193 (1966).

"A Calorimetric Study of Molten Na_2MoO_4-MoO_3 Mixtures at 970 K," A. Navrotsky and O. J. Kleppa, *Inorg. Chem*., 6, 2119-2121 (1967).

"Enthalpy of Transformation of a High-Pressure Polymorph of Titanium Dioxide to the Rutile Modification," A. Navrotsky, J. C. Jamieson, and O. J. Kleppa, *Science*, 158, 388-389 (1967).

"Enthalpy of the Anatase-Rutile Transformation," A. Navrotsky and O. J. Kleppa, *J. Am. Ceram. Soc.*, 50, 626 (1967).

"The Thermodynamics of Cation Distributions in Simple Spinels," A. Navrotsky and O. J. Kleppa, *J. Inorg. Nucl. Chem*., 29, 2701-2714 (1967).

"Thermodynamics of Formation of Simple Spinels," A. Navrotsky and O. J. Kleppa, *J. Inorg. Nucl. Chem*., 30, 479-498 (1968).

"Thermodynamics of A_3O_4-B_3O_4 Spinel Solid Solutions," A. Navrotsky, *J. Inorg. Nucl. Chem*., 31, 59-72 (1969).

"Enthalpies of Formation of Some Tungstates MWO_4," A. Navrotsky and O. J. Kleppa, *Inorg. Chem*., 8, 756-758 (1969).

"Phase Equilibria and Thermodynamic Properties of Solid Solutions in the Systems ZnO-CoO-TiO_2 and ZnO-NiO-TiO_2 at 1050 °C," A. Navrotsky and A. Muan, *J. Inorg. Nucl. Chem*., 32, 3471-3484 (1970).

"Synthesis of Mg_2GeO_4 from Tetraethylorthogermanate," A. Navrotsky, *J. Am. Ceram. Soc*., 53, 696 (1970).

"Activity-Composition Relations in the Systems CoO-ZnO and NiO-ZnO at 1050°C," A. Navrotsky and A. Muan, *J. Inorg. Nucl. Chem*., 33, 35-47 (1971).

"The Intracrystalline Cation Distribution and the Thermodynamics of Solid Solution Formation in the System $FeSiO_3$-$MgSiO_3$," A. Navrotsky, *Amer. Miner*., 56, 201-211 (1971).

"Enthalpies of Transformation Among the Tetragonal, Hexagonal and Glassy Modifications of GeO_2," A. Navrotsky, *J. Inorg. Nucl. Chem*., 33, 1119-1124 (1971).

"The Enthalpy of the Ilmenite-Perovskite Transformation in Cadmium Titanate," J. M. Neil, A. Navrotsky, and O. J. Kleppa, *Inorg. Chem*., 10, 2076-2077 (1971).

"Synthesis of Uvarovite Using a Sodium-Potassium-Borate Flux," J. Lowell, A. Navrotsky, and J. R. Holloway, *J. Am. Ceram. Soc.,* 54, 466 (1971).

"Thermodynamics of Formation of the Silicates and Germanates of Some Divalent Transitions Metals and of Magnesium," A. Navrotsky, *J. Inorg. Nucl. Chem*., 33, 4035-4050 (1971).

"Approximate Activity-Composition Relations in the System MgO-ZnO at 1205 ± 5 °C," D. S. Kenny and A. Navrotsky, *J. Inorg. Nucl. Chem*., 34, 2115-2119 (1972).

"Thermodynamic Relations Among Olivine, Spinel and Phenacite Structures in Silicates and Germanates: I. Volume Relations and the Systems NiO-MgO-GeO_2 and CoO-MgO-GeO_2," A. Navrotsky, *J. Solid State Chem*., 6, 21-41 (1973).

"Thermodynamic Relations Among Olivine, Spinel and Phenacite Structures in Silicates and Germanates: II. The Systems NiO-ZnO-GeO_2 and CoO-ZnO-GeO_2," A. Navrotsky, *J. Solid State Chem.*, 6, 42-47 (1973).

"Discussion of 'Equilibrium Cation Distributions in $NiAl_2O_4$, $CuAl_2O_4$, and $ZnAl_2O_4$'," A. Navrotsky, *J. Am. Ceram.* Soc., 56, 106 (1973).

"Estimate of Enthalpies of Formation and Fusion of Cordierite," A. Navrotsky and O. J. Kleppa, *J. Amer. Ceram. Soc.*, 56, 198-199 (1973).

"Ni_2SiO_4 -Enthalpy of the Olivine-Spinel Transition by Solution Calorimetry at 713°," A. Navrotsky, *Earth Planet. Sci. Lett.*, 19, 471-475 (1973).

"Sillimanite—Disordering Enthalpy by Calorimetry," A. Navrotsky, R. C. Newton, and O.J. Kleppa, *Geochim. Cosmochim. Acta,* 37, 2497-2508 (1973).

"Enthalpy of the Olivine-Spinel Transition in Magnesium Orthogermanate and the Thermodynamics of Olivine-Spinel-Phenacite Stability Relations," A. Navrotsky, in "Phase Transition-1973, Proceedings of the Conference on Phase Transitions and their Applications in Materials Science, University Park, Pa., May 23-25, 1973," L. E. Cross, Ed., *Pergamon Press*, 393-398 (1973).

"Thermodynamics of Binary and Ternary Transition Metal Oxides in the Solid State," A. Navrotsky, in "MTP International Reviews of Science, Inorganic Chemistry, Series 2, Vol. 5," D. W. A. Sharp, Ed., *Butterworths-University Park Press, Baltimore, MD*, 29-70 (1974).

"Thermodynamic Relations Among Olivine, Spinel and Phenacite Structures in Silicates and Germanates: III. The System CuO-MgO-GeO_2," A. Navrotsky, *J. Solid State Chem.*, 11, 10-16 (1974).

"Festkorperthermodynamik: Chemie des festen Zustandes," H. Schmalzried and A. Navrotsky, Verlag Chimie, Weinheim, Germany (1975). (In German).

"Thermodynamic Relations Among Olivine, Spinel and Phenacite Structures in Silicates and Germanates: IV. The System ZnO-MgO-GeO_2," A. Navrotsky, *J. Solid State Chem.*, 12, 12-15 (1975).

"Stability of Two Cobalt Titanate Defect Spinels," J.P. Sharples and A. Navrotsky, *J. Solid State Chem.*, 12, 122-126 (1975).

"Thermodynamics of Formation of Some Compounds with the Pseudobrookite Structure and of the $FeTi_2O_5$-Ti_3O_5 Solid Solution Series," A Navrotsky, *Amer. Miner.*, 60, 249-256 (1975).

"Ionicity and Phase Transitions at Negative Pressures," A. Navrotsky and J. C. Phillips, *Phys. Rev. B*, 11, 1583-1586 (1975).

"Thermochemistry of Chromium Compounds, Especially Oxides at High Temperature," A. Navrotsky, *Geochim. Cosmochim. Acta,* 39, 819-832 (1975).

"Silicates and Related Minerals: Solid State Chemistry and Thermodynamics Applied to Geothermometry and Geobarometry," A. Navrotsky, *Prog. Solid State Chem.* 11, 203-264 (1976).

"Thermodynamic Relations Among Olivine, Spinel and Phenacite Structures in Silicates and Germanates: V. The System MgO-'FeO'-GeO_2," A. Navrotsky and L. Hughes, Jr., *J. Solid State Chem.*, 16, 185-188 (1976).

"High Temperature Heat Content and Diffuse Transition in Lead Fluoride," C. E. Derrington, A. Navrotsky, and M. O'Keeffe, *Solid State Comm.*, 18, 47-49 (1976).

"Co^{2+} as a Chemical Analogue for Fe^{2+} in High Temperature Experiments in Basaltic Systems," W. E. Coons, J. R. Holloway, and A. Navrotsky, *Earth Planet. Sci. Lett.*, 30, 303-308 (1976).

"Spinel Disproportiation at High Pressure: Calorimetric Determination of Enthalpy of Formation of Mg_2SnO_4 and Co_2SnO_4 and Some Implications for Silicates," A. Navrotsky and R. B. Kasper, *Earth Planet. Sci. Lett.*, 31, 247-254 (1976).

"Thermochemistry of Some Pyroxenes and Related Compounds," A. Navrotsky and W. E. Coons, *Geochim. Cosmochim. Acta,* 40, 1281-1288 (1976).

"Calculation of Effect of Cation Disorder on Silicate Spinel Phase Boundaries," A. Navrotsky, *Earth Planet. Sci. Lett.*, 33, 437-442 (1977).

"Calculation of Subsolidus Phase Relations in Carbonates and Pyroxenes," A. Navrotsky and D. Loucks, *Phys. Chem. Min.*, 1, 109-127 (1977).

"Refinement of the Crystal Structure of Mg_2GeO_4 Spinel," R. B. Von Dreele, A. Navrotsky, and A. L. Bowman, *Acta Cryst.*, B33, 2287-2288 (1977).

"Chemical Thermodynamics - Areas of Current Interest," A. Navrotsky, *Bull. Chem. Thermodyn.*, 20, 573-576 (1977).

"Geological Applications of High Temperature Reaction Calorimetry," A. Navrotsky in "Thermodynamics in Geology, Proceedings of the NATO Advanced Study Institute held in Oxford, England, 17-27 Sept. 1976," D. G. Fraser, Ed., *D. Reidel Publishing Co., Dordrecht, Holland*, 1-10 (1977).

"Progress and New Directions in High Temperature Calorimetry," A. Navrotsky, *Phys. Chem. Miner.* 2, 89-104 (1977).

"Thermodynamics of Element Partitioning: (1) Systematics of Transition Metals in Crystalline and Molten Silicates and (2) Defect Chemistry and the Henry's Law Problem," A. Navrotsky, *Geochim. Cosmochim. Acta,* 42, 887-902 (1978).

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