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EDUCATION:

1970	B.A.	George Washington University, Washington, D.C.
1972	M.S.	Case Institute of Technology, Cleveland, OH
1976	Ph.D.	University of Maryland, College Park, MD

PROFESSIONAL EXPERIENCE:

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1998–2002	Samuel Roberts Noble Foundation Presidential Professor, University of Oklahoma, Norman, OK
1997–1998	Big XII Faculty Fellow, University of Oklahoma
1991–1992	Visiting Professor, Department of Astronomy, Columbia University, New York, NY
1989–present	Professor, Department of Physics and Astronomy, University of Oklahoma, Norman, OK
1988–1994	Consultant and Participating Guest, Lawrence Livermore National Laboratory, Livermore, CA
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RESEARCH INTERESTS:

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Radio observations of supernovae and galaxies

PUBLICATIONS

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C. Sneden, J. E. Lawler, J. J. Cowan, and H. L. Dinerstein, "Atomic Data and Stellar Chemical Compositions," *NASA Laboratory Astrophysics Workshop, Book of Abstracts of the NASA LAW* held in NASA-Ames Research Center, Moffett Field, California 94035, May 1-3 2002, Farid Salama, Editor (2002)

J.J. Cowan, " The r-Process: Observations, models and unresolved issues", *Bull. Am. Phys. Soc.* **47**, 14 (2002).

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L. A. Maddox, C. J. Stockdale and J. J. Cowan, "Long Term Study of Radio Point Sources in M83," *Bull. Am. Astron. Soc.* **35**, 1396 (2003).

J. J. Cowan, "Stellar Abundance Observations and Heavy Element Formation," *Bull. Am. Astron. Soc.* **37**, 504 (2005).

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C. Sneden, J. E. Lawler, E. A. Den Hartog, Z. E. Labby, J. J. Cowan and I. I. Ivans, "Hafnium and the R-Process in the Sun and Metal-Poor Stars," *Bull. Am. Astron. Soc.* **38**, 1137 (2006).

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J. Lawler, C. Sneden, and J. J. Cowan, "Erbium and the r-Process in the Sun and Metal-Poor Stars," *Bull. Am. Astron. Soc.* **39**, 925 (2007).

I. U. Roederer, A. Frebel, M. Shetrone, C. Allende Prieto, J. Rhee, R. Gallino, S. Bisterzo, C. Sneden, T. C. Beers, and J. J. Cowan, "The Hobby-Eberly Telescope "Chemical Abundances of Stars in the Halo" (CASH) Project I. The Lithium-, r-, and s-enhanced Metal-poor Giant HK-II 17435-00532," *Bull. Am. Astron. Soc.* **39**, 959 (2007).

A. Frebel, C. Allende Prieto, L. A. Davies, I. Roederer, M. Shetrone, C. Sneden, J. Rhee, T. C. Beers, and J. J. Cowan, "The Hobby-Eberly Telescope Chemical Abundances of Stars in the Halo (CASH) Project. First Year Results," *Bull. Am. Astron. Soc.* **39**, 959 (2007).

J. J. Cowan, C. Sneden, J. E. Lawler, E. A. Den Hartog, and J. Collier, "Halo Star Abundance Signatures with Improved Atomic Data: Evidence of Early Galactic Nucleosynthesis," *Bull. Am. Astron. Soc.* **39**, 960 (2007).

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J. Lawler, C. Sneden, J. J. Cowan, I. I. Ivans, and E. A. Den Hartog, "Improved Laboratory Transition Probabilities for Ce II and Application to the Ce Abundances of the Sun and Five r-Process Rich, Metal-Poor Stars," *Bull. Am. Astron. Soc.* **41**, 203 (2009).

C. Sneden, J. E. Lawler, J. J. Cowan, I. I. Ivans, and E. A. Den Hartog, "Detailed Abundance Distributions for Rare-Earth Elements in the Sun and r-Process-Rich Very Metal-Poor Stars," *Bull. Am. Astron. Soc.* **41**, 203 (2009).

INVITED TALKS AND WORKSHOP PRESENTATIONS

"The Synthesis of Elements in the Universe", invited colloquium, AAPT and SPS Annual Meeting, Kansas State University, Manhattan, Kansas (November 1979)

"The r-Process", Workshop on the *Origin and Distribution of the Elements*, University of California at Santa Cruz, Santa Cruz, California (July 1980)

"The Synthesis of Heavy Elements in Supernovae", invited colloquium, University of Nevada at Las Vegas, Las Vegas, Nevada (May 1982)

"Comets : Clues to the Origin of the Solar System", invited colloquium, University of Nevada at Las Vegas, Las Vegas, Nevada (May 1982)

"r-Process Production in Low Mass Stars", Workshop on *Stellar Nucleosynthesis*, Erice, Sicily (May 1983)

"Radio Observations of Historical Extragalactic Supernovae", Workshop on *Supernovae as Distance Indicators*, Harvard Center for Astrophysics, Cambridge, Massachusetts (September 1984)

"Radio Detections of Historical Extragalactic Supernovae", invited colloquium, University of Texas at Austin, Austin, Texas (October 1984)

"Understanding the r-Process : The Past, the Present, and the Future", invited colloquium, University of Texas at Austin, Austin, Texas (October 1984)

"Radio Observations of Historic Extragalactic Supernovae", invited colloquium, University of Illinois, Champaign, Illinois (May 1985)

"Recent Results in Understanding the r-Process", Symposium on *Nuclear Dynamics and Nuclear Astrophysics*, New York, N.Y. (April 1986)

"Radio Supernovae", invited colloquium, Max-Planck-Institute fur Physik und Astrophysik, Garching bei Munchen, West Germany (July 1986)

"VLA Observations of Extragalactic Supernovae", invited talk, The Very Large Array, Socorro, New Mexico (August 1987)

"r-Process Nucleosynthesis and Cosmochronology", invited talk, *Symposium on The Origin and Distribution of the Elements*, New Orleans, LA (September 1987)

"r-Process Nucleosynthesis and the Age of the Galaxy", invited talk, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA (November 1987)

"The Age of the Galaxy and the Universe: Evidence from r-Process Nuclear Chronometers", invited colloquium, University of Oklahoma, Norman, OK (September 1988)

"Ages from Nuclear Chronometers", invited talk, Aspen Winter Physics Conference on *Observational Constraints in Primordial and Early Galactic Nucleosynthesis*, Aspen, Colorado (January 1989)

"Observations of Very, Very Young Supernova Remnants : Galactic and Extragalactic", invited colloquium, University of Illinois, Urbana, IL (March 1989)

"Observations of Very Young Supernova Remnants", invited talk, *Astronomy Program 25th Birthday Symposium*, University of Maryland, College Park, MD (June 1989)

"A History of Galactic r-Process Nucleosynthesis", Workshop on *Supernovae*, University of California at Santa Cruz, Santa Cruz, CA (July 1989)

"A Search for Very Young Supernova Remnants", Workshop on *Supernovae*, University of California at Santa Cruz, Santa Cruz, CA (July 1989)

"Observations of Intermediate-Age Supernovae", invited seminar, Lawrence Livermore National Laboratory, Livermore, CA (August 1991)

"Observations of Intermediate-Age Supernovae", invited colloquium, Columbia University, New York, NY (September 1991)

"The r-Process and the Age of the Galaxy", invited colloquium, Bartol Research Institute and University of Delaware, Newark, DE (December 1991)

"Radio Supernovae", invited talk, The Very Large Array, (National Radio Astronomy Observatory), Socorro, New Mexico (January 1992)

"The Age of the Galaxy: Evidence from Heavy Element Nucleosynthesis," invited colloquium, State University of New York at Stony Brook, Stony Brook, New York (April 1992)

"The Age of the Galaxy," invited colloquium, Drexel University, Philadelphia, PA (April 1992)

"The Formation of Heavy Elements in Exploding Stars," invited talk, APS/AAPT Meeting, Washington, DC (April 1992)

"Observational Constraints on the r-Process and Galactic Chemical Evolution," invited talk, workshop on *Galactic Chemical Dynamics*, Clemson, SC (May 1992)

"Galactic Chronometers," invited talk, workshop on *Galactic Chemical Dynamics*, Clemson, SC (May 1992)

"Heavy Element Abundances in Low-Metallicity Stars," invited talk, *The First Symposium on Nuclear Physics in the Universe*, Oak Ridge, TN (September 1992)

"Nuclear Astrophysics," invited series of lectures, *The Third Nankai Summer School on Frontier Topics in Theoretical Astrophysics*, Nankai University, Tianjin, China (September 1993)

"The Formation, Evolution and Age of the Heavy Elements," invited colloquium, The Observatories of the Carnegie Institution of Washington, Pasadena, CA (October 1993)

"Heavy Element Abundances in Very Low-Metallicity Stars," invited talk, *Particle and Nuclear Astrophysics and Cosmology in the Next Millennium*, Snowmass, CO (July 1994)

"Stellar Heavy Element Abundances and the Age of the Galaxy," invited colloquium, Michigan State University, East Lansing, MI (April 1996)

"Abundances in Metal-Poor Stars," invited talk, *Supernovae: Their Causes and Consequences*, Santa Barbara, CA (August 1997)

"Heavy Element Synthesis and Stellar Abundances," invited colloquium, Notre Dame University, South Bend, IN (September 1997)

"Stellar Element Abundances," invited talk, *Second Symposium on Atomic and Nuclear Physics in the Universe*, Oak Ridge, TN (December 1997)

"R- and S-Process Signatures in Stars," invited seminar, University of Texas, Austin, TX (March 1998)

"R- Process Signatures from Stars," invited talk, 1998 Joint APS/AAPT Meeting, Columbus, OH (April 1998)

"Nuclear Physics, Stellar Abundances and the Age of the Galaxy," invited talk, Nuclear Symposium, American Chemical Society Meeting, Anaheim, CA (March 1999)

"Hi-Yo Silver! The Further Adventures of CS 22892–052," invited seminar, University of Texas, Austin, TX (February 2000)

"Abundances and Ages of Metal-Poor Halo (and Globular Cluster) Stars," Tenth Workshop on *Nuclear Astrophysics*, Ringberg Castle at Lake Tegernsee, Germany (March 2000)

"Stellar Heavy Element Abundances and Ages," invited talk, Nucleosynthesis 2000, American Chemical Society Meeting, Washington, DC (August 2000)

"Signatures of the r-Process," invited plenary talk, Long Range Plan for Nuclear Science Town Meeting: Astrophysics, Oakland, CA (November 2000)

"Nuclear Chronometers," invited talk, International Conference on *Cosmic Evolution* to celebrate the 60th birthday of Jean Audouze & James W. Truran, Paris, France (November 2000)

"The Formation, Evolution and Age of the Neutron-Capture Elements in the Galaxy," invited talk, Texas Symposium on Relativistic Astrophysics, Austin, TX (December 2000)

"r-Process Abundances in Halo Stars and the Age of the Galaxy," invited colloquium, Argonne National Laboratory: Workshop on *Frontiers in Nuclear Astrophysics*, Chicago, IL (February 2001)

"r-Process Abundances in Low-Metallicity Stars," invited talk, *International Symposium on Nuclear Astrophysics 2001*, Darmstadt, Germany (May 2001)

"r-Process Abundances in Low Metallicity Stars," invited seminar, University of Mainz, Mainz, Germany (May 2001)

"The r-Process and Chronometers," Eleventh Workshop on *Nuclear Astrophysics*, Ringberg Castle at Lake Tegernsee, Germany (February 2002)

"Abundances and Ages of the Oldest Stars," invited colloquium, University of North Carolina, Chapel Hill, NC (March 2002)

"r-Process and Nucleochronology," invited talk, *Low Z at Low z and High z: Early Chemical Evolution*, Minneapolis, MN (March 2002)

"Neutron-Capture Elements Abundances in Halo Stars and the Age of the Galaxy," invited colloquium, MIT, Cambridge, MA (April 2002)

"Abundances and Ages of Galactic Halo Stars," invited seminar, Institute for Nuclear Theory, Seattle, WA (June 2002)

"Abundances and Ages of Galactic Stars," invited seminar, University of Texas at Austin, Austin, TX (September 2002)

"The r-Process: Observations, models and unresolved issues," invited talk, *Workshop on Nuclear Astrophysics at the Limits of Stability*, 2002 Fall Meeting of the Division of Nuclear Physics Meeting of the American Physical Society, East Lansing, MI (October 2002)

"The r-Process, stellar abundances and ages, and unanswered questions," invited talk, *JINA Workshop on The r-process – New experimental, theoretical and observational opportunities*, Gull Lake, MI (October 2002)

"R-Process Abundance Signatures," invited talk, *Third International Conference on Fission and Properties of Neutron-Rich Nuclei*, Sanibel Island, FL (November 2002)

"Advances in r-Process Nucleosynthesis," invited talk, *The Origin and Evolution of the Elements*, Pasadena, CA (February 2003)

"Astrophysics of the r-Process: Observations," Workshop on *The Nuclear Physics of Core Collapse Supernovae*, Aspen, CO (May 2003)

" Halo Star Abundances and Heavy Element Nucleosynthesis," invited talk, *Twelfth Workshop on "Nuclear Astrophysics"* , Ringberg Castle at Lake Tegernsee, Germany (March 2004)

"Stellar Abundances, Supernovae and Heavy Element Nucleosynthesis," (http://www.int.washington.edu/talks/WorkShops/int_04_2/), invited talk, *Supernova Theory and Nucleosynthesis*, Institute for Nuclear Theory, Seattle, WA (July 2004)

"Probing the Nucleosynthesis Products of the First Stars," invited talk, *Chemical Enrichment of the Early Universe*, Santa Fe, NM (August 2004)

"Stellar Abundances, the r-Process and the Age of the Galaxy," invited seminar, the University of Chicago, Chicago, IL (January 2005)

"Stellar Abundance Observations and the r-Process," invited talk, *JINA r-Process Workshop*, Notre Dame, IN (January 2005)

"R-Process Abundance Signatures in Halo Stars," invited talk, 2^{nd} *Vistars Workshop on Nuclear Astrophysics*, Russbach, Austria (March 2005)

"Stellar Abundances, Heavy Element Nucleosynthesis and the Age of the Galaxy," invited colloquium, University of Oklahoma, Norman, OK (March 2005)

"Abundance Observations and Heavy Element Nucleosynthesis in Stars," invited colloquium, Michigan State University, East Lansing, MI (April 2005)

"Stellar Abundance Observations and the Formation of the Heavy Elements," invited colloquium, Carnegie Observatories, Pasadena, CA (April 2005)

"Stellar Abundance Observations and Heavy Element Formation," invited plenary talk, American Astronomical Society, Minneapolis, MN (June 2005)

"Nucleosynthesis: Stellar and Solar Abundances and Atomic Data," invited talk, NASA Laboratory Astrophysics Workshop, Las Vegas, NV (February 2006)

"Rare Isotope Science: Astronomy and Astrophysics," invited presentation, Rare Isotope Science Assessment Committee Meeting, Irvine, CA (February 2006)

"Explorations of the Weak and Main r-Processes," invited talk, $3^{\rm rd}$ *Vistars Workshop on Nuclear Astrophysics*, Russbach, Austria (March 2006)

"Cosmochronometers," invited talk, $3^{\rm rd}$ *Vistars Workshop on Nuclear Astrophysics*, Russbach, Austria (March 2006)

"Stellar Abundances, Heavy Element Formation and the Chemical Evolution and Age of the Galaxy," invited colloquium, University of Illinois, Urbana, IL (April 2006)

"Stellar Heavy Element Abundances and the Nature of the r-Process," invited seminar, http://www.int.washington.edu/talks/WorkShops/int_06_2a/, *The First Stars and the Evolution of the Universe*, Institute for Nuclear Theory, University of Washington, Seattle, WA (June 2006)

"In Memory of Al Cameron," invited talk, http://indico.cern.ch/conferenceTimeTable.py?confId=059, *Nuclei in the Cosmos-IX*, CERN, Geneva, Switzerland (June 2006)

"r-Process Enhanced Halo Stars," invited talk, http://indico.cern.ch/conferenceTimeTable.py?confId=059, *Nuclei in the Cosmos-IX*, CERN, Geneva, Switzerland (June 2006)

"The Age of the Oldest Stars as a Constraint on Cosmological Models," invited talk, *Outstanding Questions for the Standard Cosmological Model*, Imperial College, London, England (March 2007)

"Heavy Element Abundances in Halo Stars and the Age of the Galaxy," invited colloquium, Ohio University, Athens, OH (April 2007)

"The Chemical Evolution and Age of the Galaxy: Evidence from Halo Star Abundances," invited colloquium, Ohio State University, Columbus, OH (April 2007)

"Neutron-Capture Elements in Ultra-Metal-Poor Stars," invited talk, *FRANZ Workshop*, Forshungszentrum-Karlsruhe and Frankfurt University (Campus Riedberg)-Frankfurt, Germany (May 2007)

"The r-Process in Halo Stars," invited talk, *Matter and Energy in the Universe: From Nucleosynthesis to Cosmology*, Chateau Royal de Blois, Blois, France (May 2007)

"Halo Star Abundances and Cosmochronometers," Invited Seminar, University of Chicago, Chicago, IL (November 2007)

"The r-Process: Critical Observational Signatures and Clues ," Invited Talk, JINA Workshop on the R-Process, University of Chicago, Chicago, IL (April 2008)