

**Nestor J. Zaluzec**

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**Education**

Ph.D., Metallurgy , University of Illinois, Urbana, Illinois (1978)  
B.S., Physics, Illinois Institute of Technology, Chicago, Illinois (1973)

**Professional Experience**

*Argonne National Laboratory*

*Senior Scientist: Microscopy (2005->present)*  
*Scientific Director & Group Leader : Electron Microscopy Center, (1984-1994)*  
*Scientist: Electron Microscopy Center(1983-2005)*  
*Assistant Scientist: Materials Science Division & Electron Microscopy Center (1979-1983)*

*Oak Ridge National Laboratory*

*J.P. Wigner Research Fellow, Oak Ridge National Laboratory, Oak Ridge Tn, (1978->present)*

*University Appointments*

*Senior Fellow Northwestern Argonne Institute for Science and Engineering ( 2017->present)*  
*Senior Fellow Computational Institute: University of Chicago (2004-> 2018)*  
*Visiting Professor Materials Characterization Center: Univ. of Manchester, UK(2013-> 2017)*  
*Visiting Professor of Materials Science: Northern Illinois University (1999-> present)*  
*Adjunct Professor of Physics: University of Illinois at Chicago (1997-> present)*  
*Visiting Scientist Dept of Materials Science: Cambridge University, UK (1995-1997)*  
*Adjunct Professor Dept of Metallurgy: University of Illinois – Urbana Champaign (1980-1997)*  
*Adjunct Professor Dept of Metallurgy: Illinois Institute of Technology, Chicago ( 1980-1985)*

**Professional Honors and Awards**

Honorary Lifetime Member – Australian Microscopy & Microanalysis Society – 2018  
Fellow of the MicroAnalysis Society (2018)  
Distinguished Professional Achievement Award: Illinois Institute of Technology (2018)  
Distinguish Scientist Award: Microscopy Society of America (2017)  
Presidential Science Award: Microbeam Analysis Society (2012 )  
R&D 100 Award: The  $\pi$  Steradian X-ray Detector for Electron-Optical Beam Lines(2010)  
President Microscopy Society of America (2010-2012)  
Fellow of the Microscopy Society of America (2009)  
Distinguished University Alumni Award University of Illinois, College of Engineering - (2005)  
August Köhler Award: State Microscopical Society of Illinois (2004)  
Distinguished Scientist Award : Australian Microscopy Society: (2004)  
R&D 100 Award: Scanning Confocal Electron Microscope (2003)  
Executive Council Member Microscopy Society of America (2002-2004)  
M.D. Maser Distinguished Service Award: Microscopy Society of America: (1998)  
Presidential Citation: Australian Society for Electron Microscopy (1996)  
Honorary Lifetime Member Illinois Junior Academy of Science (1995)  
Member of the Year: Midwest Society of Electron Microscopists (1993)  
Distinguished Service Award EMSA Bulletin (1987)  
Science Digest: One of America's 100 Brightest Scientists (1984)  
E.F. Burton Award for Contributions to Electron Microscopy (1982)  
Eugene P. Wigner Research Fellow - Oak Ridge National Lab (1978)

## Professional Society Memberships

Microscopy Society of America (MSA): 1979-*present*  
MicroAnalysis Society (MAS): 1979-*present*  
Australian Society for Electron Microscopy: 1988-*present*  
Midwest Microscopy and Microanalysis Society: 1990-*present*  
Microscopical Society of Canada: 1993-*present*  
New Zealand Microscopy Society – 2013-*present*  
Royal Microscopical Society (U.K): 1992-1996  
American Society for Testing of Materials: 1992-1997  
International Standards Organization: 1992-*present*  
European Microscopy Society: 1997-*present*

## Professional Activities

Illinois Junior Academy of Science Region 11 Organization Committee (1985-*present*)  
Coordinator MSA Computer Workshop & Software Library (1986-*present*)  
MSA Bulletin Editor (1987-1994)  
Editor Journal of Electron Microscopy Technique (1987-1992)  
Microscopy Listserver - SysOp (1987-*present*)  
Program Committee Microscopy Society of America (1988-*present*)  
Standards Committee Microscopy Society of America-Chair (1990-*present*)  
Education Committee Microscopy Society of America (1989-2012)  
University of Illinois MatSEA Alumni Board of Directors (1990-2000)  
Illinois Junior Academy of Science-Board of Directors (1990-*present*)  
Director Materials Science Program Midwest Society of EM (1990-1994)  
ASTM E-42 Standards Committee (1992-1997)  
ISO Standards Committee TC-202 on Analytical Electron Microscopy - Chair- (1992-1997)  
ISO Standards Committee TC-202 on Analytical Electron Microscopy (1998-*present*)  
ISO Standards Working Group WG-202 Data Management and Treatment – Chair- (1992-2006)  
MicroBeam Analysis Society Journal Editor (1993-1996)  
President Midwest Microscopy and Microanalysis Society (1994-1996)  
Program Chair Microscopy & Microanalysis Meeting – Kansas City, Mo (1995)  
Editor Proceedings of Microscopy & Microanalysis (1995)  
Editor Proceedings of Microscopy & Microanalysis (1996)  
Program Chair Microscopy & Microanalysis Meeting – Minneapolis, Mn (1996)  
Editorial Board Journal of Microscopy and Microanalysis (1997-*present*)  
Editorial Board Microscopy & Analysis (1998-*present*)  
Energy Science Network Steering Committee - DoE/BES Representative (1998-2006)  
ANL MCS Computer Sciences Advisory Committee (2001-2008)  
Director Materials Science Section Microscopy Society of America (2002-2005 )  
LAC Chair–Microscopy & Microanalysis Meeting Chicago-(2003-2006)  
President Microscopy Society of America (2010-2012)  
Symposium Co-Organizer Microscopy & Microanalysis Meeting (2014 -2018)

## Recent Publications

1. S.S. Rout, P. R. Heck, N.J. Zaluzec, T. Ishii, J. Wen, D.J. Miller, .Schmitz, *Shocked Chromites in Fossil L Chondrites: A Raman Spectroscopy and Transmission Electron Microscopy Study*, *Meteoritics & Planetary Science* V52, #9, 1776-1796, (2017) doi: 10.1111/maps.12887
2. E. Prestat, M.A. Kulzick, P.J. Dietrich, M. Smith, E. Tien, M.G. Burke, S.J. Haigh, N.J. Zaluzec, *In Situ Industrial Bimetallic Catalyst Characterization using Scanning Transmission Electron Microscopy and X-ray Absorption Spectroscopy at One Atmosphere and Elevated Temperature*, *CHEMPHYSICHEM* V18, #16, August 18, 2017, Pages: 2151–2156 DOI: 10.1002/cphc.201700425
3. S. Schilling, A. Janssen, N. J. Zaluzec, M.G. Burke, *Practical Aspects of Electrochemical Corrosion Measurements during in situ Analytical TEM of Austenitic Stainless Steel in Aqueous Media*, *Microsc.*

- Microanal. 23, 741–750, 2017 , doi:10.1017/S1431927617012314
4. H.S. Suh, D. H. Kim, P. Moni, S. Xiong, L.E. Ocola, N.J. Zaluzec, K.K. Gleason, P. F. Nealey, *Sub-10 nm patterning via directed self-assembly of block copolymer films with a vapor-phase deposited topcoat*, Nature Nanotechnology , 12, 575-581, (2017) doi:10.1038/nnano.2017.34
  5. M.E. Holtz, D.A. Muller, N.J. Zaluzec, *Analytical Electron Microscopy during In-Situ Liquid Cell Studies Chapter 21 in “Liquid Cell Electron Microscopy“* – Editor F. Ross ISBN: 9781107116573 Cambridge University Press (Jan 2017)
  6. N. J. Zaluzec, *The Influence Of  $C_s/C_c$  Correction In Analytical Imaging And Spectroscopy In Scanning And Transmission Electron Microscopy*, Ultramicroscopy **151**, 240-249 (2015).
  7. N. J. Zaluzec, *Theoretical and Experimental X-Ray Peak/Background Ratios and Implications for Energy-Dispersive Spectrometry in the Next-Generation Analytical Electron Microscope*, Microsc Microanal **22** (01), 230-236 (2016)
  8. T. Slater, Y. Chen, G. Auton, N.J. Zaluzec, S. J. Haigh, *X-Ray Absorption Correction for Quantitative STEM-EDX of Spherical Nanoparticles*. *Microsc Microanal*. 2016 440-7.
  9. K. R. Whittle, M. G. Blackford, K. L. Smith, N. J. Zaluzec, M. Weyland and G. R. Lumpkin, *Radiation effects in Zr and Hf containing garnets*, J Nucl Mater **462**, 508-513 (2015).
  10. T. Segal-Peretz, J. Winterstein, M. Doxastakis, A. Ramirez-Hernandez, M. Biswas, J. X. Ren, H. S. Suh, S. B. Darling, J. A. Liddle, J. W. Elam, J. J. de Pablo, N. J. Zaluzec and P. F. Nealey, *Deciphering the Three-Dimensional Structure of Block Copolymers via Sequential Infiltration Synthesis and Scanning Transmission Electron Tomography*, ACS Nano **9** (5), 5333-5347 (2015).
  11. N. J. Zaluzec, *Analytical Formulae for Calculation of X-Ray Detector Solid Angles in the Scanning and Scanning/Transmission Analytical Electron Microscope*, Microsc Microanal **20** (4), 1318-1326 (2014).
  12. J. Wen, D. J. Miller, W. Chen, T. Xu, L. Yu, S. B. Darling and N. J. Zaluzec, *Visualization of Hierarchical Nanodomains in Polymer/Fullerene Bulk Heterojunction Solar Cells*, Microsc Microanal **20** (05), 1507-1513 (2014).
  13. T. Sun, M. M. J. Treacy, T. Li, N. J. Zaluzec and J. M. Gibson, *The Importance of Averaging to Interpret Electron Correlographs of Disordered Materials*, Microsc Microanal **20** (2), 627-634 (2014).
  14. V. R. Manfrinato, J. G. Wen, L. H. Zhang, Y. J. Yang, R. G. Hobbs, B. Baker, D. Su, D. Zakharov, N. J. Zaluzec, D. J. Miller, E. A. Stach and K. K. Berggren, *Determining the Resolution Limits of Electron-Beam Lithography: Direct Measurement of the Point-Spread Function*, Nano Letters **14** (8), 4406-4412 (2014).
  15. E. A. Lewis, S. J. Haigh, T. J. A. Slater, Z. He, M. A. Kulzick, M. G. Burke and N. J. Zaluzec, *Real-time imaging and local elemental analysis of nanostructures in liquids*, Chem Comm **50** (70), 10019-10022 (2014).

## Publication Synopsis

Refereed Journal Articles - 100  
 Refereed Book Chapters - 7  
 Refereed Proceedings & non-Journal Publications – 189  
 Non-Refereed Publications– 63  
 Technical Reports & Other Publications - 7  
 Invited Presentations, Lectures & Seminars at Conferences & Symposia – 287  
 Invited Presentations, Lectures & Seminars (Institutional) – 57  
 Contributed Presentations, Lectures & Seminars at Conferences & Symposia – 102  
 Google Scholar: Citations 5792 : h-factor 40 : i10-index 94

## Patents

1. *A Charged Particle Microscope with improved spectroscopic functionality* N.J. Zaluzec, P. Don , G. vonVeen, (2015: US Patent Application filed #62159014)
2. *High Collection Efficiency X-Ray Spectrometer System With Integrated Electron Beam Stop , Electron Detector And X-Ray Detector For Use On Electron-Optical Beam Lines And Microscopes* N.J. Zaluzec (2010: US Patent # 8314386: )
3. *The Scanning Confocal Electron Microscope* N. J. Zaluzec, (2003: US Patent # 6548810)
4. *Simultaneous Specimen and Stage Cleaning Device for an AEM*, N.J. Zaluzec (1996: US Patent # 5510624)