CURRICULUM VITAE: Laurence Daniel MARKS

Date of Birth: 4 July 1954

Education:	1973-1976	University of Cambridge, B.A. 1976
	1976-1980	Research student at the Cavendish Laboratory, Cambridge
	1980	Ph.D., University of Cambridge Thesis entitled "The structure of small silver particles"
Professional Career:		
	1980-1983	Post doctoral research assistant Cavendish Laboratory (Dept. of Physics), University of Cambridge
	1983-1985	Post doctoral research assistant, Department of Physics Arizona State University
	March 1985	Assistant Professor
	June 1986	Associate Professor
	June 1992-	Professor, Department of Materials, Science & Engineering, Northwestern University

Email L-marks@northwestern.edu
Web www.numis.northwestern.edu
Google Scholar scholar.google.com/citations?user=zmHhI9gAAAAJ&hl=en

Awards and Honors:

ICSOS Surface Structure Prize, 2017
Fellow, Microscopy Society of America, 2017
Astor Visiting Lecturer, University of Oxford, 2015
Warren Award, American Crystallographic Association, 2015
Fellow, American Physical Society, 2001
Burton Medal, Electron Microscopy Society of America, 1989
Sloan Foundation Fellowship 1987
Scholarship, Kings College, University of Cambridge 1976

Current Research Interests:

Electron Microscopy
Precession Electron Diffraction; Surface Imaging in an Electron Microscope; Dynamical Diffraction; In-Situ Microscopy; Direct Methods for Bulk Materials; Charge Density Measurements
Density Functional Theory
Mixing and Optimization Algorithms, Oxide Surfaces, Flexoelectric Effects
Oxide Surfaces
Structure, Kinetics and Energetics of Oxide Surfaces; Predictive Rules for Oxide Surfaces; Direct Methods with Electrons or X-rays; Corrosion
Tribology

The Role of Dislocations in Nanoscale Tribological Properties; In-Situ Tribology; Metal-on-Metal Hip Replacements

Nanoparticles

Role of structure and shape on surface plasmonics; nucleation and growth of nanoparticles; thermodynamics and Wulff constructions; Catalysis; Nanoplasmonics.

Corrosion

Understanding the early stages of corrosion, both high temperature oxidation and aqueous; Solute Trapping; Cabrera-Mott models; Morphological Instabilities

Main Current External Committees

IUCR, Program Committee
ICSOSS, Program Committee
Commission on Electron Crystallography of IUCR
Co-Editor, Acta Cryst A
US National Crystallography Committee

PhD Students

Ajayan, Pulichek (1989), *Phase instabilities in small particles.*
Ma, Yiquan (1990) *Dynamical theory for high energy electron reflection.*
Bonevich, John (1991), *Atomic structure and sintering behavior of ultrafine ceramic particles.*
Buckett, Mary (1991), *Electron radiation damage in transition metal oxides*.
Derren Dunn (1992) *Ultra high vacuum transmission electron microscopy of the clean surfaces of Au and Ir (001).*
Ai, Rebecca (1992), *Electron-induced surface radiation damage in V_2O_5, ReO_3 and CaF_2.*
Narayanaswamy, Dorai (1995) *Morphology transformations in nanoparticles.*
Jayaram, Ganesh (1995) *Ultrahigh vacuum transmission electron microscopy studies of semiconductor surfaces.*
Vuchic, Boris (1995) *The formation, transport properties and microstructure of 45° [001] tilt grain boundaries in $YBa_2Cu_3O_{7-X}$ thin films.*
Plass, Richard (1996) *Gold induced Si(111) surface reconstructions studied by ultrahigh vacuum transmission electron microscopy*.
Storey, Brad (1996) *Microstructure and composition of magnetic flux pinning defects in high-temperature superconductors.*
Collazo-Davila, Christopher (1998) *Initial stages of thin film deposition : metal-induced surface reconstruction on semiconductors and the nucleation of cubic boron nitride*.
Landree, Eric (1998) *Structural and chemical characterization of thin films and crystal surfaces.*
Bengu, Erman (2000) *Experimental and computational study of surfaces, interfaces and thin films.*
Grozea, Daniel (2000) *Initial growth of ultrathin metal films on semiconductors.*

Carmody, Michael (2000) *The local variation of the critical current along YBa2Cu3O7-x grainboundary and ramp-edge Josephson junctions.*
Li, Quan (2001) *Nucleation and growth of metastable phases in thin films.*
Erdman, Natasha (2002), *Structure, morphology and chemistry of catalytic transition metal oxides.*
Edy Widjaja (2004) *Quasicrystalline thin films : growth, structure and interface.*
Arun Subramanian (2004) *Charge Density at Oxide Surfaces*
Ann Chiaramonti (2005) *Surfaces of Catalytically Relevant Oxides*
Chris Own (2005) *Precession Electron Diffraction*
Yingmin Wang (2006) *Catalysis by Gold Nanoparticles*
Arno Merkle (2006) *Nanotribology*
Courtney Lanier (2007) *Real and Model Oxide Surfaces*
Robin Koshy (2008) *Thermally Activated Self-lubricating Nanostructured Coating for Cutting Tool Applications*
Paramita Mondal (2008) *Nanoscale Properties and Mechanics of Cementitious Materials*
James Ciston (2009) *Crystallographic perturbations to valence charge density and hydrogen-surface interactions*
James Enterkin (2010) *A Chemical Approach to Understanding Oxide Surface Structure and Reactivity*
Brian Quezada (2010) *Strontium Titanate Surfaces*
Andres E. Becerra-Toledo (2011) Surface Stabilization Mechanisms in Metal Oxides
Emilie Ringe (2012) Building the Nanoplasmonics Toolbox Through Shape Modeling and Single Particle Optical Studies
M'ndange-Pfupfu, Ariel (2012) Structural and Chemical Investigations of Nanotribology Using In Situ Transmission Electron Microscopy and Defect Based Analytical Modeling
Danielle Kienzle (2013) Surface Reconstructions of Oxides
Yuyuan Lin (2014) Atomic Surface Structures of Oxide Materials: From Single Crystals to Nanoparticles
Chuandao Wang (2014) Atomically-Precise Synthesis of Platinum Catalysts on Strontium Titanate using Atomic Layer Deposition
Emily Hoffman (2017) Tribology and Corrosion in CoCrMo Alloys and Similar Systems
Betty Peng (2017) Shape, Thermodynamics, Kinetics and Growth Mechanisms of Metal and Bimetallic Nanoparticles
Pratik Koirala (2017) Oxide Surfaces and Flexoelectric Effects

Current PhD Students

Crosby, Lawrence	Controlled Heterogeneous Catalysis
Say Young Cook	Oxide Surfaces for Electrocatalysis
Tassie Andersen	Oxide Surfaces for Electrocatalysis
Tiffany Ly	Oxide Naoparticles and Surfaces
Chris Mizzi	Oxide Surfaces and Flexoelectric Effects
Ryan Pauli	Oxide Nanoparticle Catalysis (with K. R. Poeppelmeier)
Zachary Mansley	Oxide Nanoparticle Catalysis
Alex Lin	Tribology and Corrosion

Current Postdoctoral Scientist

Xiao-xiang Yu	Corrosion, Experimental and Theoretical
Edmund Long	Corrosion, Experimental and Theoretical

Postdoctoral or Visiting Scientists to date (Chronological)

D. E. Luzzi, J. P. Zhang, H. Shibahara, J. Singh, H. J. Fan, D. J. Li, H. Zhang, P. Xu, V. A. Volpert, W. Sinkler, C. Leslie. J. J. Hu, F. N. Chukhovskii, R. Kilaas, B. Deng, Y. Wang. S. Eswara Moorth, Y. Liao, H. Amari), Victor Zenou (Ben-Gurion University of the Negev), Yifeng Liao (Dow Chemical), Ahmet Gulec

Recent Collaborators

M. Asta (UCD), S Barnett (NU), P Blaha (Vienna), O. Bunk (ESRF), M Castell (Oxford), F.-R. Chen (Taiwan), Y. W Chung (NU), J. Ciston (LBNL), U. Diebold (TU-Wien), R. Van Duyne (NU), D. van Dyke (Antwerp), D. Ellis (NU), A. Erdimir (ANL), R. Feidenhans'l (Copenhagen), A. Fischer (Essen), J. Jacobs (Rush), A Kirkland (Oxford), H. Kung (NU), T. Marks (NU), R. Luke (Delaware), M. Olvera (NU), J. Perepezko (Madison), K. Poeppelmeier (NU), P. Reinke (Virginia), E. Ringe (Rice), I. K. Robinson (UCL), J. Rondinelli (NU), J. Scully (Virginia), G. Schatz (NU), S. Shah (NU), K. Shull (NU), W. Sinkler (UOP), P. C. Stair (NU), N. Tanaka (Nagoya), K. Tsuda (Tohoku), P. Voorhees (NU), J. Wang (NU), O. Warschkow (Sydney), O. Warren (Hysitron), W Weitz (NU), M. Yacaman (UTSA), J. Zhegenhagen (ESRF)

Talks from 2000- (Invited only)

2000

UHV Electron Microscopy of Surfaces, 6th International Symposium on Inorganic Materials, Tokyo, Japan (3/2/00)

Growth of Single-Wall Boron Nitride Nanotubes & Nanostructures, 5th International Symposium on Advanced Physical Fields, Fabrication & Characterization of Atomic Scale Structures, Tsukuba, Japan (3/6/00 - 3/9/00)

Direct Methods of Imaging Surfaces, Workshop on Electron Holography and Other Direct Methods, Hong Kong (8/11/00-8/18/00)

Transportation Nanotechnology, Exxon Corporation, Clinton, NJ, December 2000

Nucleation and Growth of BN Nanostructures, Aerospace Corporation, Los Angeles, CA December 2000.

Direct Methods , LBL, Berkley, CA, December 2000.

2001

Feasible-Sets, and the General Phase Problem, Phase Problem for Non-Periodic Objects , Berkley, CA, May 2001.

Nucleation and Growth of Quasicrystalline Thin Films, AFOSR contractors meeting, Florida, July 2001.

Direct Methods for Surfaces, Annual Catalysis Center Meeting, Evanston, IL September, 2001.

2002

Direct Methods with Electrons, American Crystallographic Association, San

Antonio, May 2002
In-Situ microscopy, NTEAM-11 workshop, Berkeley, June 2002
Charge Density at Surfaces, ICSOSS-9, Newcastle, Australia, June 2002
Feasible Sets , International Union of Crystallography, Zurich, July 2002
Electron Microscopy of Surfaces, International Conference on Electron Microscopy, Durban, South Africa, August 2002
The Scientist, the Immigrant and the Ombudsman, keynote lecture, United States Ombudsman Association Annual Meeting, October 2002
UHV Micrography of Surfaces, ICEM Conference, Durban, S. Africa, 9/02

2003

Transportation Nanotechnology, FWHA, Washington, DC, April 2003
Direct Methods with Electrons, Electron Crystallography School, Moscow, June 2003

2004

Direct Methods with Electrons, First NCEM Crystallography School, April 2004,
Charge Transfer at Oxide Surfaces, Electronic Materials Conference, Notre Dame, May 2004
Nanotribology and Quasicrystalline Interfaces, Irsee Conference, May 2004
Charge Density at Oxide Surfaces, Gordon Conference, July 2004
Oxide Surfaces, Gordon Research Conference, July 2004
Prospects for Aberration Corrected Precession Diffraction, TEAM Session, Savannah, Georgia, August 2004
Charge Transfer at an MgO Surface, Microscopy Society of American Annual Meeting, Savannah, Georgia, August 2004
Oxides: From Structure to Chemistry, University of Washington, August 2004

2005

Precession Electron Diffraction, Oxford, UK, January 2005
Imaging Surfaces with Electrons, McMaster, Canada, February 2005
Imaging Surfaces with Electrons, Champain-Urbana, Midwest Microscopy Meeting, June 2005
Precession Electron Diffraction, ACA Meeting, Orlando, Florida, June 2005
Experimental Charge Densities at Surfaces, IUCR Meeting, Florence, Italy, August 2005
Surfaces, Finding the Atoms then Finding the Electrons, Nancy, France, August 2005
Dynamical Direct Methods ; Precession Electron Diffraction, Brussels, Belgium, September 2005, School on Electron Crystallography

2006

Examining Surfaces at the Nanoscale, Ankara, Turkey, May 2006
Electron Diffraction: Synergies, ELCRYST School on Electron Crystallography, Antwerp, August 2006
Charge, Glowing in the Dark, Chinese Microscopy Meeting, Shengyang, August 2006
Charge Glowing in the Dark, ICEM, Sapporro, Japan, August 2006
Precession Electron Diffraction, Pittsburg Diffraction Conference, October 2006

2007

What DFT Teaches Surfaces and Surfaces Teach DFT, Wien2k School, Penn State Univ
Friction in Full View, Berkeley Nanomechanics meeting, July 2007
Charge Density at Surfaces, EMMM2007, Moscow, September 2007
Friction in Full View, Seattle, AVS, October 2007
Precession Electron Diffraction, IUCR Crystallography School, Taiwan, November 2007

2008

Oxide Surfaces, Korea, February 2008
Friction in Full View, Argonne National Labs, May 2008
Robust Mixing for DFT, SIAM Conference, Philadelphia, May 2008
Friction in Full View, Tribology Gordon Conference, July 2008
Direct Methods for Surfaces, ICSOSS, Brazil, August 2008
Friction in Full View, Nagoya IUCR Satellite Meeting, September 2008
Oxide Surfaces, Lehigh University, September 2008
Friction in Full View, Sikkim Discussions, Sikkim, India, November 2008

2009

Friction in Full View, Yale University, February 2009
Friction in Full View, Heraeus Seminar, Bad Honnef, Germany, March 2009
Oxide Surfaces, Spring MRS Meeting, April 2009
Oxide Surfaces, APS, Argonne National Labs, April 2009
Precession Electron Diffraction, Lille School, France, July 2009
Oxide Surfaces, EMC25, Istanbul, Turkey, August 2009
Friction in Full View, UTRC, September 2009
Quantitative Microscopy, AEM-NANOMAT'09, Saltillo, Mexico, September 2009
Friction in Full View, ibid
Oxide Surfaces, ETH Zurich, October 2009
Oxide Surfaces, UIC, November 2009

2010

Correllated TEM and Optical Surface Plasmon Measurements, Rio de Janero, IMC-7, September 2010
Correllated TEM and Optical Surface Plasmon Measurements, Osaka, Japan, October 2010
Correllated TEM and Optical Surface Plasmon Measurements, Nagoya, Japan, October 2010
Oxide Surfaces, University of Wisconsin, Madison, September 2010
Tribology in Full View, McGill University, Canada, October 2010
Tribology in Full View, MP3 Workshop, Illinois, October 2010

2011

The Phase Problem in Electron Crystallography, Erice School, Sicily, June 2011
Models for Precession Electron Diffraction, ibid
Mixing and Minimization, Wien2k School, Penn State, July 2011
Correllated TEM and Optical Surface Plasmon Measurements, EM50, Hyderabad, July 2011
Solving Structures from Diffraction Data, MSA, Nashville, August 2011

Direct Methods for Surfaces, IUCR Triannual Meeting, Madrid, September 2011

2012

Tribology in Full View, Beijing, January 2012
Tribology in Full View, Korea, January 2012
Tribiology of Carbons, Gordon Research Conference, June 2012
Nanoparticles: UTSA, 2012
Nanoparticles: From Wulff to Winterbottom and Beyond, MP0903, Brno, March 2012
Oxide Surfaces, Wien Technical University, March 2012
Nanoparticles: From Wulff to Winterbottom and Beyond, TOFA, September 2012
Oxide Surfaces, TMS, Pittsburg, October 2012
Nanoparticles: From Wulff to Winterbottom and Beyond, U. Colorado, November 2012
Nanotribology: NIST, November 2012

2013

Advanced Electron Microscopy, UC Irvine, Jan 2013
Oxide Surfaces, ACS, New Orleans, April 2013
Tribology in Full View, 4th International Workshop on Remote Electron Microscopy and In Situ Studies, Portugal, May 2013
DFT Mixing, SIAM Conference, Philadelphia, June 2013
Tribology in Full View, Drexel University, June 2013
Hip Implants, Advances in scanning transmission electron microscopy, Tennessee, August 2013
Nanoplasmonics, EMAG, York, September 2013
Solving the Phase Problem, PICO 2013, October 2013
Friction in Full View, AVS 2013, Long Beach CA, November 2013
The Pandora's Box of Perovskite Surfaces, Argonne National Labs, November 2013
Nanoplasmonics & Nanotribology, Seagate, November 2013
Oxides Surfaces and Nanoparticles: from Atomic Surface Structure to Thernodynamically Stable Face Selective Catalysis, UCLA, November 2013

2014

Oxide Surfaces, IMEC16, Haifa, Israel, February 2014
Friction in Full View, CIMTEC 2014, Montecatini Terme, Italy, June 2014
Nanoparticle Thermodynamics, Catalysis Gordon Conference, Colby-Sawyer College, June 2014
Three Lectures, MSA Preconference School on Diffraction, Hartford, August 2014
From Wulff to Winterbottom and Beyond, IUCR, Montreal, August 2014
Oxide Surfaces, YUCOMAT, Montenegro, October 2014
Electron Crystallography, International Symposium on Crystallography, Fortaleza, Brazil, October 2014
Advanced Electron Microscopies, Duisberg-Essen, Germany, November 2014

2015

Nanoparticles and Nanoalloys, ISSC-20, Birmingham, March 2015

Oxide Surfaces, Opening the Pandora's Box for SrTiO3, MPM-1, Hangzhou, China, May 2015
Surfaces and Growth In-Situ: From Structure to Designed Nanostructures, SINANO, Suzhou, China, May 2015
Electron Crystallography, Warren Award Lecture, Philadelphia, July 2015
New Tools for Surfaces, NIMS, Tsukuba, Japan, July 2015
New Tools for Surfaces, UniCat Meeting, Northwestern University, August 2015
Understanding Nanoparticles, Rice University, September 2015
Oxide Surfaces, MS&T October 2015
Astor Lectures, October 2015
Corrosion: rust with 21st century tools
Oxide surfaces: opening the Pandora's Box
Nanoparticles: from thermodynamics and shape to plasmonics and catalysis
Tribology in Full View, 2015 STLE Tribology Frontiers Conference

2016

Tribology in Full View, Heraus Conference, March 2016
Nanoparticles, from Plasmonics to Catalysis, ASU, April 2016
Corrosion in 4D, June 2016
Oxide Surfaces, 4th International Workshop on Complex Oxides, June 2016
Advanced TEM of Surfaces, ICMAT, Brazil, November 2016

2017

Unexpected Flexoelectric Effects in Rare Earth Scandates, Kolkata, Jan 2017
Rust with 21st Century Tools, IBTN Keynote Lecture, Feb 2017
Crystallography of Nanoparticles, ACA, April 2017
Pauling's Rules for Oxide Surfaces, ICSOSS, July 2017
Chloride in Corrosion, Yucomat, September 2017
Carbon, carbon everywhere, from catalysts to hip implants, AVS, Oct 2017

Publications in refereed journals

1. Multiply-Twinned Particles in Silver Catalysts
   L.D. Marks and A. Howie
   Nature 282(5735): p. 196-198, 1979

2. High-Resolution Studies of Small Particles of Gold and Silver .1. Multiply-Twinned Particles
   L.D. Marks and D.J. Smith
   Journal of Crystal Growth 54(3): p. 425-432, 1981

3. High-Resolution Studies of Small Particles of Gold and Silver .2. Single-Crystals, Lamellar Twins and Polyparticles
   D.J. Smith and L.D. Marks
   Journal of Crystal Growth 54(3): p. 433-438, 1981

4. Direct Lattice Imaging of Small Metal Particles
   D.J. Smith and L.D. Marks
   Philosophical Magazine a-Physics of Condensed Matter Structure Defects and Mechanical Properties 44(3): p. 735-740, 1981

5. New Imaging Methods for Catalyst Particles
   A. Howie, L.D. Marks, and S.J. Pennycook
   Ultramicroscopy 8(1-2): p. 163-174, 1982

6. Observation of the Image Force for Fast Electrons near an Mgo Surface
   L.D. Marks
   Solid State Communications 43(10): p. 727-729, 1982

7. Direct Imaging of Carbon-Covered and Clean Gold (110) Surfaces
   L.D. Marks
   Physical Review Letters 51(11): p. 1000-1002, 1983

8. Modified Wulff Constructions for Twinned Particles
   L.D. Marks
   Journal of Crystal Growth 61(3): p. 556-566, 1983

9. HREM and STEM of Defects in Multiply-Twinned Particles
   L.D. Marks and D.J. Smith
   Journal of Microscopy-Oxford 130(MAY): p. 249-261, 1983

10. Direct Surface Imaging in Small Metal Particles
    L.D. Marks and D.J. Smith
    Nature 303(5915): p. 316-317, 1983

11. Elastic Strains and the Energy-Balance for Multiply Twinned Particles

A. Howie and L.D. Marks
Philosophical Magazine a-Physics of Condensed Matter Structure Defects and Mechanical Properties 49(1): p. 95-109, 1984

12. Bloch Wave Hrem
L.D. Marks
Ultramicroscopy 14(4): p. 351-355, 1984

13. High-Resolution Surface Imaging
L.D. Marks
Acta Crystallographica Section A 40: p. C390-C390, 1984

14. Direct Atomic Imaging of Solid-Surfaces .1. Image Simulation and Interpretation
L.D. Marks
Surface Science 139(1): p. 281-298, 1984

15. Dispersive Equations for High-Resolution Imaging and Lattice Fringe Artifacts
L.D. Marks
Ultramicroscopy 12(3): p. 237-242, 1984

16. Surface-Structure and Energetics of Multiply Twinned Particles
L.D. Marks
Philosophical Magazine a-Physics of Condensed Matter Structure Defects and Mechanical Properties 49(1): p. 81-93, 1984

17. Direct Observation of Elastic and Plastic-Deformations at Au(111) Surfaces
L.D. Marks, V. Heine, and D.J. Smith
Physical Review Letters 52(8): p. 656-658, 1984

18. Direct Atomic Imaging of Solid-Surfaces .2. Gold (111) Surfaces During and after Insitu Carbon Etching
L.D. Marks and D.J. Smith
Surface Science 143(2-3): p. 495-508, 1984

19. Image Localization
L.D. Marks
Ultramicroscopy 18(1-4): p. 33-37, 1985

20. Imaging Small Particles
L.D. Marks
Ultramicroscopy 18(1-4): p. 445-452, 1985

21. Direct Observation of Diffractive Probe Spreading
L.D. Marks
Ultramicroscopy 16(2): p. 261-264, 1985

22. Inhomogeneous Strains in Small Particles
L.D. Marks
Surface Science 150(2): p. 302-318, 1985

23. Particle-Size Effects on Wulff Constructions
L.D. Marks
Surface Science 150(2): p. 358-366, 1985

24. Electronically Induced Geometrical Catalytic Effects
L.D. Marks and V. Heine
Journal of Catalysis 94(2): p. 570-572, 1985

25. Atomic Imaging of Particle Surfaces
L.D. Marks and D.J. Smith
Acs Symposium Series 288: p. 341-350, 1985

26. Direct Atomic Imaging of Solid-Surfaces .4. Dislocations on Au(100)
L.D. Marks and D.J. Smith
Surface Science 157(1): p. L367-L372, 1985

27. Direct Atomic Imaging of Solid-Surfaces .3. Small Particles and Extended Au Surfaces
D.J. Smith and L.D. Marks
Ultramicroscopy 16(1): p. 101-113, 1985

28. The Role of Volume and Pairwise Forces in the Reconstruction of Noble-Metal Surfaces
V. Heine and L.D. Marks
Journal of Electron Spectroscopy and Related Phenomena 38(1-4): p. 229-232, 1986

29. Competition between Pairwise and Multi-Atom Forces at Noble- Metal Surfaces
V. Heine and L.D. Marks
Surface Science 165(1): p. 65-82, 1986

30. Solid-Like Growth
L.D. Marks
Thin Solid Films 136(2): p. 309-315, 1986

31. Quasi-Melting of Small Particles
L.D. Marks, P.M. Ajayan, and J. Dundurs
Ultramicroscopy 20(1-2): p. 77-82, 1986

32. Atomic Imaging of Oxygen Desorption from Tungsten Trioxide
A.K. Petford, L.D. Marks, and M. Okeeffe
Surface Science 172(2): p. 496-508, 1986

33. Stress Effects in Small Particles
L.D. Marks, P.M. Ajayan, and J. Dundurs
Journal of Metals 39(10): p. A85-A85, 1987

34. Order-Disorder in YBa2Cu3O7
L.D. Marks, J.P. Zhang, S.J. Hwu, and K.R. Poeppelmeier
Journal of Solid State Chemistry 69(1): p. 189-195, 1987

35. 950-Degrees-C Subsolidus Phase-Diagram for Y2O3-BaO-Cuo System in Air
G. Wang, S.J. Hwu, S.N. Song, J.B. Ketterson, L.D. Marks, R. Poeppelmeier, and T.O. Mason
Advanced Ceramic Materials 2(3B): p. 313-326, 1987

36. Quasimelting and Phases of Small Particles
P.M. Ajayan and L.D. Marks
Physical Review Letters 60(7): p. 585-587, 1988

37. Contrast Transfer Theory for Non-Linear Imaging
J.E. Bonevich and L.D. Marks
Ultramicroscopy 26(3): p. 313-319, 1988

38. Structural Fluctuations in Small Particles
J. Dundurs, L.D. Marks, and P.M. Ajayan
Philosophical Magazine a-Physics of Condensed Matter Structure Defects and Mechanical Properties 57(4): p. 605-620, 1988

39. Synthesis and Structure of Copper-Rich and Yttrium-Rich YBa2Cu3O7-x Superconductors
D.J. Li, H. Shibahara, J.P. Zhang, L.D. Marks, H.O. Marcy, and S. Song
Physica C 156(2): p. 201-207, 1988

40. Linear Imaging and Diffraction of an Amorphous Film
L.D. Marks
Ultramicroscopy 25(1): p. 85-87, 1988

41. High-Resolution Electron-Microscopy of High-Temperature Superconductors
L.D. Marks, D.J. Li, H. Shibahara, and J.P. Zhang
Journal of Electron Microscopy Technique 8(3): p. 297-306, 1988

42. Current Flow in Reflection Electron-Microscopy and Rheed
L.D. Marks and Y. Ma
Acta Crystallographica Section A 44: p. 392-393, 1988

43. Encapsulation, Diffusion and Diet in the Electron-Microscope
J. Strane, L.D. Marks, D.E. Luzzi, M.I. Buckett, J.P. Zhang, and B.W. Wessels

Ultramicroscopy 25(3): p. 253-257, 1988

44. Structure and Polytypes in Thallium Superconductors
J.P. Zhang, D.J. Li, H. Shibahara, and L.D. Marks
Superconductor Science & Technology 1(3): p. 132-136, 1988

45. Experimental-Evidence for Quasimelting in Small Particles
P.M. Ajayan and L.D. Marks
Physical Review Letters 63(3): p. 279-282, 1989

46. Evidence for Sinking of Small Particles into Substrates and Implications for Heterogeneous Catalysis
P.M. Ajayan and L.D. Marks
Nature 338(6211): p. 139-141, 1989

47. Electron-Irradiation Damage in Oxides
M.I. Buckett, J. Strane, D.E. Luzzi, J.P. Zhang, B.W. Wessels, and L.D. Marks
Ultramicroscopy 29(1-4): p. 217-227, 1989

48. Phase-Transitions in V2O5 in a High-Resolution Electron- Microscope
H.J. Fan and L.D. Marks
Ultramicroscopy 31(4): p. 357-364, 1989

49. Trigonal Phases in $YBa_2Cu_3O_{6.5}$
D.J. Li, J.P. Zhang, J.P. Thiel, and L.D. Marks
Journal of Solid State Chemistry 81(2): p. 165-172, 1989

50. Ballistic Surface-Diffusion
Y. Ma and L.D. Marks
Ultramicroscopy 31(2): p. 193-198, 1989

51. Bloch-Wave Solution in the Bragg Case
Y. Ma and L.D. Marks
Acta Crystallographica Section A 45: p. 174-182, 1989

52. Self-Consistent Solution of the Reflection Diffraction Problem
L.D. Marks and Y. Ma
Ultramicroscopy 31(2): p. 241-244, 1989

53. Dynamical Theory of Spot Splitting in Rheed
L.D. Marks and Y. Ma
Ultramicroscopy 29(1-4): p. 183-191, 1989

54. Copper-Rich Planar Defects in Gd-Substituted Superconductors
H. Shibahara, L.D. Marks, S.J. Hwu, and K.R. Poeppelmeier
Journal of Solid State Chemistry 79(2): p. 194-204, 1989

55. HREM Study on the Oxygen Vacancies in Gd Superconductors
H. Shibahara, J.P. Zhang, and L.D. Marks
Journal of Electron Microscopy 38(4): p. 313-313, 1989

56. Fingerprint of Oxygen Vacancies in Gd Superconductors
H. Shibahara, J.P. Zhang, and L.D. Marks
Ultramicroscopy 27(2): p. 185-191, 1989

57. Diffusion During Electron-Beam-Induced Reduction of Tungsten Trioxide
S.R. Singh and L.D. Marks
Philosophical Magazine Letters 60(1): p. 31-36, 1989

58. Symmetry in Diet Phase-Transitions
J.P. Zhang and L.D. Marks
Surface Science 222(1): p. 13-20, 1989

59. Phase Instabilities in Small Particles
P.M. Ajayan and L.D. Marks
Phase Transitions 24-6(1): p. 229-258, 1990

60. Electron-Irradiation Damage in NiO
M.I. Buckett and L.D. Marks
Surface Science 232(3): p. 353-366, 1990

61. Superconductors and Nonsuperconductors in $Nd_{2-X}Ce_xCuO_4$
D.J. Li, J.P. Zhang, and L.D. Marks
Physica C 168(5-6): p. 617-626, 1990

62. Surface Phenomena in Rheed and Rem
Y. Ma and L.D. Marks
Acta Crystallographica Section A 46: p. 594-606, 1990

63. Bloch Waves and Multislice in Transmission and Reflection Diffraction
Y. Ma and L.D. Marks
Acta Crystallographica Section A 46: p. 11-32, 1990

64. Equilibrium Shape of a Buoyant Particle
L.D. Marks and P.M. Ajayan
Journal of Materials Research 5(7): p. 1496-1501, 1990

65. UHV Microscopy of Surfaces
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