RESUME

PETER REZ

Personal: Born: May 11, 1952 in London, England
US Citizen

Education:

Undergraduate: Churchill College, Cambridge University (1970-1973)
Honorary Scholarship, Churchill College, 1973
B.A. (Hons) 1st Class, in Physics and Theoretical
Physics (Theoretical Option)

Postgraduate: St. Catherine's College and Department of Metallurgy
and Science of Materials, Oxford University (1973-1976)
Science Research Council (S.R.C.) research student (1973-1976)
Teaching Assistant, Crystallography Class (1973-1975)
Senior Scholar, St. Catherine's College (1974-1976)
D. Phil thesis, 1976 "The Theory of Inelastic
Scattering in the Electron Microscopy of Crystals"

Teaching: Four lectures on Dynamical Diffraction (University of California, Davis {1980,1981})
Analytical Electron Microscopy (University of California,Berkeley {1982})
PHY 334 Intermediate Physics Laboratory (ASU 1986,2001)
PHY 481 Solid State Physics (ASU 1987,1988,1989,1990,1991,1994)
MSE 557 Electron Microscopy (Analytical Electron Microscopy : about half the course) (ASU 1990,1991)
PHY 361,362 Modern Physics (ASU 1992,1993)
PHY 351 Optics (ASU 1993,1994)
PHY 494 Medical Physics (ASU,1995,1996,2003)
PHY 361 Modern Physics (ASU, 1995)
PHY 121,131 College Physics (ASU 1997,1998,1999,2000,2002,2003,2004)
PHY 412 Electricity and Magnetism III (2004,2005,2006)
PHY 122,132 College Physics Laboratory

Positions Held:

S.R.C. Research Fellow, Department of Metallurgy and Science of Materials, Oxford University (1976-1977)
(Conducted independent research approved by the S.R.C. on electron scattering theory as applied to electron microscopy).

Assistant Specialist, Department of Materials Science and Mineral Engineering, University of California, Berkeley (1977-1978)
(Research on theory for high resolution microscopy.)

Scientist, Kevex Corporation, Foster City, CA (1978-1981)
(Developed software and hardware for X-ray, energy loss and Auger spectroscopies.)

Charge d'Etudes, Centre National d'Etudes de Telecommunications (CNET), Paris (Bagneux), (May, June 1981)
(Advised on Microanalysis.)

Assistant Research Engineer, Department of Materials Science and Mineral Engineering, University of California, Berkeley, (1981-1982)
(Microanalysis Research especially energy loss analysis of ceramic materials.)

Software Manager, VG Microscopes Ltd., East Grinstead, Sussex, England (1983-1985)
(Joint project manager in the development of computer controlled microscope including digital imaging and spectral acquisition.)

Assistant Professor, Center for Solid State Science and Dept. of Physics (1985-1991)
Associate Director, Facility for High Resolution Microscopy
Manager, Computer Systems for High Resolution Microscopy
Organiser, Winter Schools on High Resolution Microscopy (1986-1990)
Organiser, Center for Solid State Science Seminars {1985-1988}
Associate Professor, Department of Physics and Astronomy and Center for Solid State Science (1991-1997)
Full Professor, Department of Physics and Astronomy and Center for Solid State Science (1997-)

Professional Societies:

Institute of Physics (U.K.)
American Physical Society (APS)
Microbeam Analysis Society (MAS)
Microscopy Society of America (MSA)
American Association for Physicists in Medicine (AAPM)

Awards:

Corning Award, Microbeam Analysis Society, 1982
Fellow UK Institute of Physics, 2004
Elected Member, Research on Calculus Kinetics Society (ROCK), 2004

Professional Activities At Arizona State since 1985

Associate Director, Facility for High Resolution Microscopy (1985-1992)
Manager, Computer Systems for High Resolution Microscopy (1985-1992)

Organiser, Winter School on High Resolution Microscopy 1986
Organiser, Winter School on High Resolution Microscopy 1987
Organiser, Winter School on High Resolution Microscopy 1988
Organiser, Winter School on High Resolution Microscopy 1989
Organiser, Winter School on High Resolution Microscopy 1990
Organiser, Winter School on High Resolution Microscopy 1991
Organiser, Center for Solid State Science Seminars {1985-1986}
Organiser, Center for Solid State Science Seminars {1986-1987}
Organiser, Center for Solid State Science Seminars {1987-1988}

Physics Department Facilities and Services Committee (1985-1987)
Physics Department Graduate Exam Committee (1987-1989, 1992-1994,2001-2003)
Physics Department Graduate Program Committee (1989-1991)
Physics Department Undergraduate Program Committee (1994-1996)
Chairman, Science and Engineering of Materials Program Curriculum and Exam Committee (1990-1991)
College of Liberal Arts and Sciences Student Grievance Committee (1994-1996),
Chairman (1995-1996)
University and College Senator (2003-)

Chairman, Search Committee for HREM Computer Systems Coordinator (twice)
Chairman, Search Committee for HREM Electronics Research Specialist

Chairman, PhD committee, X Weng, graduated Aug 1989
Chairman, PhD Committee, J. Alvarez-Bada, graduated 1998
Chairman MS Committee, A Gul, graduated 2005

Chairman Honors Thesis Committees, T. Biewer, H. Dorian, D. Vonk

Member PhD thesis committees:
V Bissessur, J. Rask, J.K. Weiss, LM. Peng, J.M. Zuo
S.Y. Wang, P. Diehl, M Gadarjiska, D. Eisenhour, K. Katrinak,A. Amali, M. Stefanini, S Qumar

Member, Jury de These (Docteur Ingenieur ou Docteur es Sciences) Universite Paris 6
T. Manoubi and M. Tence
Member, PhD Committee (Delft University, Netherlands), W.J. deRuijter (1992)

Examiner, M. Phil. (Cambridge University, UK) M. Lanzerotti (1991)
Examiner, PhD (Cambridge University, UK) H. Mullejans (1992)
Examiner, PhD (University of Trondheim, Norway), (1992)

Organising Committee, Lake Tahoe Workshop on Electron Energy Loss Spectroscopy, 1990
Organiser Phoenix Area Medical Physics Society (PAMPS)

Member Microcopy Society of America Standards Committee (1992-)

Refereed Papers for

Acta Crystallographica., Journal of Physics (UK), Physical Review., Physical Review Letters, Scanning, Ultramicroscopy, Journal of Microscopy, Journal of Electron Microscopy Technique, Journal of Urology, Science, Radiation Effacts

Publications

* Denotes Refereed Published Conference Paper
*I Denotes Invited, Refereed Published Conference Paper

"Resonance Errors and Partial Coherence in the Inelastic Scattering of Fast Electrons by Crystal Excitations" A.P. Young and P. Rez, J. Phys. C 8, L1-7, 1975.

* "The Distribution of Phonon Scattered Electrons in High Energy Electron Diffraction Patterns" P. Rez, C.J. Humphreys and M.J. Whelan, Proceedings of the 1976 EMAG Conference, Bristol, Published as "Developments in Electron Microscopy and Analysis", 1975, p. 373-376, (Academic Press).

* "Backscattering and the Production of X-rays in Thin Crystals" P. Rez and A.P. Young, Proceedings of the 1976 EMAG Conference, Bristol Published as "Developments in Electron Microscopy and Analysis", 1976, P. 389-392, (Academic Press).

* "The Contrast of Crystal Defects in Inelastically Scattered Electrons" P. Rez, Proceedings of the 6th European Congress on Electron Microscopy, Jerusalem, 1976, p. 282-284.

"The Distribution of Intensity in Electron Diffraction Patterns Due to Phonon Scattering" P. Rez, C.J. Humphreys and M.J. Whelan, Phil. Mag., 31, 1977, p. 81-96.

* "Dynamical Diffraction from Periodic Arrays of Dislocations" P. Rez, Proceedings of the 50th Anniversary of Electron Diffraction Conference, London, 1977, p. 109-115.

* "Multiple Inelastic Scattering and Dynamical Diffraction" P. Rez,Proceeding of the 50th Anniversary of Electron Diffraction Conference, London, 1977, p. 61-67.

* "Algebraic Approaches to N-Beam Theory" A.C. Hurley , A.W.S. Johnson,A.F. Moodie, P. Rez and J.R. Sellar, Proceedings of the 50th Anniversary of Electron Diffraction Conference, London 1977, p.34-40.

"Virtual Inelastic Scattering in High Energy Electron Diffraction" P.Rez, Acta Cryst., A34, 1978, p. 48-51.

* "A Theoretical Analysis of Lattice Fringe Imaging" P. Rez, Proc. 9th Int. EM Conference, Toronto 1978, p. 280-281.

* "Computer Simulation of High Resolution Images of Crystal Defects" P. Rez and O.L. Krivanek, Proc. 9th Int. Conference on EM, Toronto 1978, p. 288-289.

* "A Quantitative Approach to Inner Shell Losses" R.D. Leapman, P. Rez and D.F. Mayers, Proc. 9th Int. EM Conference, Toronto 1978, p. 526-527.

*I "A Transport Equation Theory of Electron Backscattering and X-ray Production" D.J. Fathers and P. Rez, Proc. 13th Annual MAS Conference, Paper 40, 1978.

* "The Effect of Stacking Faults and Dislocations on Convergent Beam Patterns" P. Rez, Proc. 37th EMSA, San Antonio, 1979, p. 138-139.

* "Theoretical Estimates of the Accuracy of Quantitative Procedures in Electron Energy Loss Spectrometry" P. Rez and R.D. Leapman, Proc. 37th EMSA, San Antonio, 1979, p. 518-519.

* "Multiple Scattering of Fast Electrons in Thin Specimens" P. Rez, Proc. 14th Microbeam Analysis Society Conference, San Antonio, (San Francisco Press), 1979, p. 117-118.

"The Absorption of Bloch Waves in High Energy Electron Diffraction" P. Rez, Phys. Stat. Sol., 1979, 35, K79-K82.

*I "A Transport Equation Theory of Electron Backscattering" D.J. Fathers and P. Rez, SEM/1, 1979, p. 55-66.

"K, L and M Shell Generalised Oscillator Strengths and Ionisation Cross Sections" R.D. Leapman, P. Rez and D.F. Mayers, J. Chem. Phys.,1980, 72, 1232-1243.

* "Imaging of Atomic Columns in 110 Silicon" O.L. Krivanek and P. Rez, Proc. 38th EMSA, ,1980, p. 170-171.

* "The Use of an Array Processor for Calculation of High Resolution Images" P. Rez, Proc. 38th EMSA, 1980, p. 180-181.

* "Accuracy of the Peak-to-Background method for Quantitative Analysis",J.F. Konopka and P. Rez, Microbeam Analysis, (San Francisco Press), 1981, p. 183-185.

* "Core Loss Shape and Cross Section Calculations" P. Rez and R.D. Leapman. Analytical Microscopy, (San Francisco Press), 1981, p 181-186.

* "L and M Shell Ionisation Cross Sections for Use in Microanalysis" P. Rez, Analytical Microscopy, (San Francisco Press), 1981, p. 87-90.

*I "Computer Control of STEM for X-ray and Energy Loss Imaging" P. Rez and C. Ahn, Proc. 39th EMSA, Atlanta, 1981, p. 262-264.

"Electron Microscope/Computer Interactions": A General Introduction" P. Rez and D.B. Williams, Ultramicroscopy 8, 1982, 247-252.

"Computer Control for X-ray and Energy Loss Line Profiles and Images".P. Rez and C. Ahn, Ultramicroscopy 8, 1982, 341-350.

"Cross Sections for Energy Loss Spectrometry" P. Rez, Ultramicroscopy 9, 1982, 283-288.

* "The Thickness Dependence of Energy Loss Spectra" M. Sarikaya and P. Rez, Proc 40th EMSA, 1982, p. 486-487.

"Orientation-Dependent Extended Fine Structure in Electron Energy Loss Spectra" M.M. Disko, O.L. Krivanek and P. Rez, Phys. Rev., B25, 1982, 4252-4255.

* "Detection Limits and Error Analysis in Energy Loss Spectrometry" P. Rez, Microbeam Analysis, (San Francisco Press), 1983, p. 153-155.

"A Transport Equation Theory of Beam Spreading in the Electron Microscope" P. Rez, Ultramicroscopy 12, 1983, 29-38.

"The Contrast of Defects in Inelastically Scattered Electrons" P. Rez, Acta Cryst, A39, 1983, 697-706.

* "Effect of Voltage on the Orientation Dependence of Electron Induced Characteristic X-ray Emissions" K.M. Krishnan, P. Rez and G. Thomas, Proc. HVEM Conf., Berkeley (eds. R. Fisher, R. Gronsky and K.H. Westmacott) 1983, p. 365-370.

* "Comparison of Theoretical EELS Edges with Experimental Data" P. Rez and C. Ahn, Analytical Microscopy, ed. D.B. Williams (San Francisco Press) 1984, p. 294-298.

*I "A Transport Theory of Electron Scattering in Solids" D.J. Fathers and P. Rez, Electron Beam Interactions with Solids, ed. D.F. Kyser, H. Niedrig, D.E. Newbury, R. Shimizu, (SEM Inc.), 1984, p.193-208.

*I "Elastic Scattering of Electrons by Atoms" P. Rez, Electron Beam Interactions with Solids, eds. D.F. Kyser, H. Niedrig, D.E. Newbury and R. Shimizu, (SEM Inc), 1984, p. 43-49.

"Electron Ionisation Cross Sections for K, L and M Shells" P. Rez, X-ray Spectrometry, 13, 1984, 55-59.

"Limitations in the Use of Peak-to-Background Method for Quantitative Analysis" P. Rez and John Konopka, X-ray Spectrometry 13, 1984, 33-37.

* "Determination of the Specific Site Occupation of Rare Earth Additions in $Y_{1.7}Sm_{0.6}Lu_{0.7}Fe_5O_{12}$ by the Orientation Dependence Characteristic X-ray Emissions", K.M. Krishnan, P. Rez, R. Mishra and G. Thomas, Mat. Res. Symp. Proc. 31, 1984, 79-84.

"Inner Shell Edge Shapes in Electron Energy Loss Spectroscopy" C. Ahn and P. Rez, Ultramicroscopy, 17, 1985, 105-115.

"Crystallographic Site Occupancy Refinements in Thin-Film Oxides by Channelling Enhanced Microanalysis" K.M. Krishnan, P. Rez and G. Thomas, by Acta Cryst. B41, 1985, 396-405.

"The use of array processors attached to minicomputers for multislice image calculations" P. Rez, Ultramicroscopy, 16, 1985, 255-259.

"The combined effect of acceleration and incident beam orientation on the characteristic X-ray production in thin crystals," K.M. Krishnan, P. Rez, Gareth Thomas, Y. Yokota and H. Hashimoto, Phil. Mag. 53, 1986, 339-348.

"White Lines in the $L_{2,3}$ Electron Energy Loss and X-ray Absorption Spectra of 3d Transition Metals", W.G. Waddington, P. Rez, I.P. Grant and C.J. Humphreys, Phys. Rev. B34, 1986, 1467-1473.

* "White Lines in the Electron Energy Loss Spectra of 3d Transition Metals", P. Rez, W.G. Waddington, I.P. Grant and C.J. Humphreys, Microbeam Analysis, eds. A.D. Romig and W.F. Chambers (San Francisco Press, 1986, p. 421-424.

"The Theory of the Excitation of Atomic Inner Shells in Crystals by Fast Electrons", D.K. Saldin and P. Rez, Phil. Mag, 55, 1987, 481-489.

*I "Computer Systems Architecture for Image and Spectral Processing", P. Rez and D.J. Fathers, Proc. 45th EMSA, ed. by G.W. Bailey, San Francisco Press, 1987, 92-95.

* "Inner Shell Energy Loss Spectroscopy under Reflection Microscopy Conditions", Z.L. Wang and P. Rez, Proc. 45th EMSA, ed. by G.W. Bailey, San Francisco Press, 1987, 120-121.

* "Calculations of Oxygen Electron Energy Loss Near Edge Structure", X. Weng and P. Rez, Proc. 45th EMSA, ed. by G.W. Bailey, San Francisco Press, 1987, 128-129.

"Solid State Effects on Core Electron Cross Sections Used in Micro-analysis", X. Weng and P. Rez, Ultramicroscopy, 25, 1988, 345-348.

* "Analytic Integration of Contrast Transfer Functions", P. Rez, Proc. 46th EMSA, ed. by G.W. Bailey, San Francisco Press, 1988, 822-823.

*I "Computer Systems in Microscopy - The Big, The Small and The Ugly", Proc. 46th EMSA, ed. by G.W. Bailey, San Francisco Press, 1988, 910-911.

* "Oxygen K Near Edge Structures Studied with Multiple Scattering Calculations", X. Weng and P. Rez, Proc. 46th EMSA, ed. by G.W. Bailey, San Francisco Press, 1988, 504-505.

* "Ab Initio Band Theory Approach to Electron Energy Loss Near Edge Structures", X. Weng, O.F. Sankey and P. Rez, Proc. 46th EMSA, ed. by G.W. Bailey, San Francisco, 1988, 506-507.

"Analytic Properties of the Contrast Transfer Function in High Resolution Electron Microscopy", P. Rez, Acta. Cryst, A44, 1988, 946-953.

"Inner Shell Spectroscopy: an Atomic View", P. Rez, Ultramicroscopy, 28, 1989, 16-23.

"Multiple Scattering Approach to Near Edge Structures in Electron Energy Loss Spectroscopy of Alkaline Earths", X. Weng and P. Rez, Phys. Rev.B39, 1989, 7405-7412.

"Auger Electron Spectroscopy from Elemental Standards/Theoretical Calculations", D.R. Batchelor, P. Rez, D.J. Fathers and J.A.Venables, Surface and Interface Analysis, 13, 1988, 193-201.

*I "Recent Developments in Automated Transmission Electron Microscopy", W.J. de Ruijter, P. Rez and D.J. Smith, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 46-47.

*I "Electron Energy Loss Near Edge Structure", Xudong Weng and Peter Rez, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 384-385.

* "EELS White Line Intensities Calculated for the 3d and 4d Metals", C.C. Ahn, D.H. Pearson, P. Rez and B. Fultz, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 388-389.

* "Transition Metal Oxides Revisited: ELNES of Metal L_{23} and Oxygen K Edges", O.L. Krivanek, J.H. Paterson, H.R. Poppa and P. Rez, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 390-391.

* "Quantitative Analysis of Rare Earth Oxides, T. Manoubi, P. Rez and C. Colliex, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 394-395.

* "New Instrumentation for Time Resolved Microanalysis Using Parallel EELS", J.K. Weiss, P. Rez, A.A. Higgs, K. Das Chowdhury and M.R. McCartney, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 406-407.

* "A New Method of Computing the Phase Grating Function in Multislice Calculations", M. Pan, P. Rez and J.M. Cowley, Proc. 47th EMSA, ed. G.W. Bailey, San Francisco Press, 1989, p. 478-479.

* "Development of a High Sensitivity Array Detector and Fast Digital Data Analysis System for Coherent Nanodiffraction Patterns", J.H. Butler, G.Y. Fan, J.M. Cowley, P. Rez, Proc. 47th EMSA, 1989, p. 496-497.

"Dipole Forbidden Excitations in Electron Energy Loss Spectroscopy", J. Auerhammer and P. Rez, Phys. Rev. B40, 1989, 2024-2030.

"A Comparison of Theoretical and Experimental L and M Cross Sections", J. Auerhammer, P. Rez and F. Hofer, Ultramicroscopy, 30, 1989, 365-370.

"Carbon K Shell Absorption Near Edge Structure: Multiple Scattering and Band Theory Calculations", X. Weng, H. Ma and P. Rez, Phys. Rev., B40, 1989, 4175-4178.

"Pseudo Atomic-Orbital Band Theory Applied to Electron Energy Loss Near Edge Structures", X. Weng, P. Rez and O.F. Sankey, Phys. Rev., B40, 1989, 5694-5704.

"Quantitative Electron Energy Loss Spectroscopy on $M_{4,5}$ Edges in Rare Earth Oxides", T. Manoubi, P. Rez, C. Colliex, J. Electron Spectroscopy, 50,1990, 1-18..

"Single Electron Calculations for the Si $L_{2,3}$ Near Edge Structure"
X. Weng, P. Rez and P.E. Batson, Solid State Commun., 74, 1990, 1013-1015.

*I "The Electron Microscope and the Computer: Present Trends and Future Prospects"
P. Rez and W.J. deRuijter, Proc. 12th International Congress on Electron Microscopy,
(San Fransisco Press, San Francisco) ,1990, p.116-117.

* "Recent Progress and Plans in Computer-Controlled High Resolution Electron Microscopy"
W.J. deRuijter, P. Rez and D.J. Smith. Proc. 12th International Congress on Electron Microscopy, (San Fransisco Press, San Francisco) ,1990, p.154-155.

* "Observation of the Structural Phase Transition in $SrTiO_3$ By Diffuse Electron Scattering,
J.M. Zuo and P. Rez, Proc. 12th International Congress on Electron Microscopy, (San Fransisco Press, San Francisco) ,1990, p.420-421.

* "Optimum Collection Angle for Detection of Small Catalyst Particles in High Angle Dark Field Scanning Transmission Electron Microscopy" A. Amali and P. Rez,Proc. 12th International Congress on Electron Microscopy, (San Fransisco Press, San Francisco) ,1990, p.

* "Hartree-Slater Calculations of the L_{23} Edges of 3d Transition Metal Electron Energv Loss Spectra" D.H. Pearson, C.C. Ahn, B. Fultz and P. Rez, Proc. 12th International Congress on Electron Microscopy, (San Fransisco Press, San Francisco) ,1990, p 58-59.

*I "Interpretation of Near Edge Structure" P. Rez, X. Weng and H. Ma, Microanalysis and Structures 2,1991, 143-151.

"Plasmons in Amorphous Multilayer Films",P. Rez, X. Weng, N.J. Long and A.K. Petford-Long Phys. Rev. B 42,1990, 9182-9184.

"Electron Energy Loss Spectroscopy and Energy Dispersive X-ray Analysis", P. Rez, Chapter 6 of Volume 4, "Physical Methods of Chemistry"p 203-237 (John Wiley:New York)

"Measurement of Energy Deposition in Transmission Electron Microscopy",P. Rez and R.W. Glaisher, Ultramicroscopy, 35, 1991, 65-69.

*I "Acquisition Hardware for Imaging", in "Signal and Image Processing in Microscopy and Microanalysis",ed. O. Johari (Scanning Electron Microscopy, Chicago), p 81-94, P. Rez, J.K. Weiss, W.J. deRuijter, 1994.

"Chemical Lattice Imaging: a Pedantic Note", P. Rez, Ultramicroscopy, 41, 1992, 115-120.

"The Thickness Determination of Organic Crystals Under Low Dose Conditions Using Electron Energy Loss Spectroscopy", P. Rez, W. Chiu, J.K. Weiss and J. Brink, Microscopy Research Technique, 21, 1992, 166-170.

"Energy Loss Fine Structure", Chapter 5 in "Transmission Electron Energy Loss Spectrometry in Materials Science"p 107-129, eds. M.M. Disko, CC. Ahn and B. Fultz (Minerals, Metals and Materials Society,Warrendale) ,1992

"A Computer System for Imaging and Spectroscopy in Analytical Electron Microscopy", J.K. Weiss, P. Rez and A.A. Higgs, Ultramicroscopy,41,1992, 291-301.

"Structural Variations in Individual Carbanaceous Particles From an Urban Aerosol", K.A. Katrinak, P. Rez and P.R. Buseck, Environmental Science and Technology, 26, 1992, 1967-1976.

"Fractal Geometry of Carbanaceous Aerosol Particles as Determined Using Transmission Electron Microscopy", K.A. Katrinak,P. Rez, P. Perkes and P. Buseck, Environmental Science and Technology, 27, 1993, 539-547.

* "Fractal Geometry of Carbanaceous Aerosol Particles as Determined Using Transmission Electron Microscopy", K.A. Katrinak,P. Rez, P. Perkes and P. Buseck, Proc. 50th EMSA, eds. G.W. Bailey, J Bentley, J Small, San Fransisco Press, 1992, 312-313.

* "Theoretical Considerations in Lattice Resolution High Angle Annular Dark Field Imaging", A. Amali,P. Rez, Proc. 50th EMSA, eds. G.W. Bailey, J Bentley, J Small, San Fransisco Press, 1992, 1226-1227.

* "Characterization of Stacked Dielectric Structures By TEM, Electron Holography and Electron Energy Loss Spectrsocopy", G. Waytena, P. Rez,J.K. Weiss, Proc. 50th EMSA, eds. G.W. Bailey, J Bentley, J Small, San Fransisco Press, 1992, 1430-1431.

"The Contribution of Discrete Transitions to Integrated Inner Shell Ionisation Cross Sections", D. Rez and P. Rez, Microscopy, MicroAnalysis and Microstructures", 3, 1992, 433-442.

"The Effectiveness of Electron Holography, Microscopy and Energy Loss Spectroscopy in Characterizing thin Silicon Oxide-Nitride-Oxide Structures", G. Waytena, J Hren and P. Rez, Journal of Applied Physics, 73, 1993, 1750-1760.

"Does Phonon Scattering Give High Resolution Images?", P. Rez, Ultramicroscopy, 52, 1993, 260-266.

* "Dirac-Fock Calculations of Scattering Factors and Mean Inner Potentials for Neutral and Ionised Atoms", D. Rez and P. Rez, Proc. 51st EMSA, San Franscisco Press, 1993,1202-1203.

* "Low Voltage Scanning Electron Microscopy of Urinary Stones", P . Rez and M. Reilly, Proc. 51st EMSA, San Francisco Press, 1993,416-417.

* "Standard Formats for the Exchange and Storage of Image Data", R.F. Egerton,D.S. Bright, S.P. Davilla, P. Ingram, E.J. Kirkland, M. Kundmann, C.E. Lyman, P. Rez, E. Steele, N.J. Zaluzec, Proc. 51st EMSA, San Francisco Press, 1993,220-221.

"The Microstructure of Cubic Boron Nitride Thin Films Grown by Ion-Assisted Pulse Laser Deposition", D.L. Medlin, T.A. Friedmann, P.B. Mirkarimi, P. Rez, M.J. Mills and K.F. McCarty, J. Appl. Phys, 1994, 76, 295-303.

"Dirac-Fock Calculations of X-ray Scattering Factors and Contributions to the Mean Inner Potential for Electron Scattering", D. Rez and P. Rez and I.P. Grant, Acta Cryst. A50, 1994, 481-497.

* "Atomic Force Microscopy Investigations of Urinary Stones", P. Rez, G.W. Drach, D.R. Yaniv, F. Shaapur, Proc.13th ICEM,1994, 767-768.

* "Determination of Fourier Coefficients of Potential by Voltage Variation",P. Rez, Proc. 13th ICEM,1994, 937-938.

* "Quantitative Simulations of Electron Channelling Patterns and Electron Backscattering From Crystals", S.L. Dudarev, A.J. Wilkinson, P. Rez, J.T. Czernuszka and M.J. Whelan, Proc. 13th ICEM, 1994, 353-354.

* "Specimen Preparation for Scanning Probe Microscopy of Materials by Ultramicrotomy", F. Shaapur, P. Rez, D.R. Yaniv and G.W. Drach, Proc. 52nd MSA, 1994, 878-879.

"Energy Deposition in Thin Films Calculated Using Electron Transport Theory", T. Biewer and P. Rez, J. Appl. Phys.,76, 1994, 7636-7638.

"Theory of Electron Backscattering from Single Crystals", S.L. Dudarev, P. Rez and M.J. Whelan,Phys. Rev. B 51, 1995, 3397-3412.

"Estimates of the Accuracy of Calculated Charge Densities", P. Rez, J.C. Rendall and M.C. Payne, Optik, 1995, 135-140.

"A Matrix Operator Approach to RHEED Theory", P. Rez, Acta Cryst A51, 1995, 38-47.

"Direct measurements of the Radiolytic Transformation of Thin Films of Titanium Dioxide using EELS", P. Rez, J.K. Weiss, D.L. Medlin and D.G. Howitt, Microscopy, Microanalysis and Microstructures, 1995, 6, 1-8.

"Review of methods for calculating near edge structure", P. Rez, J. Bruley, P. Brohan, M.C. Payne and L.AJ. Garvie, Ultramicr.,59, 1995, 159-167.

"Ionization cross sections for the L_{23} edges of the elements Sr to Mo for quantitative EELS analysis", F. Hofer, G. Kothleitner and P. Rez, Ultramicr., 1996, 63, 239-245.

"Evidence for Aggregation in Oxalate Stone Formation: Atomic Force and Low Voltage Scanning Electron Microscopy", H.H. Dorian, P. Rez and G.W. Drach, J. Urol., 1996, 156, 1833-1837.

* "Density of States Calculations for Ni-Al Alloys", J.R. Alvarez and P. Rez, Microscopy and Microanalysis 1996, 524-525.

* "Calculations of Cu $L_{2,3}$ Fine Structure At Grain Boundaries", P. Rez and J.M. Maclaren, Microscopy and Microanalysis 1996, 528-229.

* Atomic Force amd Low Voltage Scanning Electron Microscopy Evidence for Aggregation in Oxalate Urinary Stones", P. Rez, S. Altmann, H.H. Dorian, G.W. Drach, Urolithiasis 1996 Proceedings, 1996, 329-331.

"Accurate Analytical Representations of the Core Electron Densities of the Elements 3 through 118", J. Cioslowski, P. Piskorz and P. Rez, Journal of Chemical Physics, 1997, 106, 3607-3612.

"Theory of Lattice Resolution in High Angle Annular Dark Field Images", A. Amali and P. Rez, Microscopy and Microanalysis, 1997, 3, 28-46.

"High Angle Annular Dark Field Imaging of Stacking Faults", A. Amali, P. Rez and J.M. Cowley, Micron, 1997, 28, 89-94.

"Charge density of MgO: Implications of precise new measurements for theory", J.M. Zuo, M. O'Keeffe, P. Rez and J.C.H. Spence, Phys. Rev. Lett., 1997, 78, 4777-4780.

* "Electronic Structure of Impurities in Fe", J.R. Alvarez and P. Rez, Microscopy and Microanalysis", 1997, 659-660

* "Calculation of Electron Energy Loss Near Edge Structure by the Layered KKR Method", P. Rez and J.M. Maclaren, Microscopy and Microanalysis", 1997, 959-960

* "Can the Number of d Electrons in Transition Metals be Measured From White Lines?", P. Rez, Microscopy and Microanalysis", 1997, 957-958

"STM Contrast, Electron Transfer Chemistry and Conduction in Molecules", W. Han, E.N. Durantini, T.A. Moore, A.L. Moore, J.D. Gust, P. Rez, G. Leatherman, G.E. Seely, N. Tao and S.M. Lindsay,J. Phys. Chem. B, 1997, 101, 10719-10725.

"Characterization of Beryllium-Boron Bearing Materials by Parallel Electron Energy-Loss Spectroscopy (PEELS)" , L.A.J. Garvie, P.R. Buseck and P. Rez, J. Solid State Chem., 1997, 133, 347-355.

"Application of the Layer Korringa Kohn Rostoker Method to the Calculation of Near Edge Structure in X-ray Absorption and Electron Energy Loss Spectroscopy", P. Rez, J. M. Maclaren and D.K. Saldin, Phys. Rev. B57 , 1998, 2620-2627.

"Chemistry and Bonding Changes Associated with the Segregation of Bi to Grain Boundaries in Cu", V.J. Keast, J. Bruley, P. Rez, J.M. Maclaren and D.B. Williams, Acta Met., 1998, 46, 481-49.

"The Interband Transitions of Crystalline and Amorphous SiO_2: a Low Loss EELS Study", L.A.J. Garvie, P. Rez, J.R. Alvarez and P.R. Buseck, Solid State Commun., 1998, 106, 303-307.

"The Electronic Structure of Stishovite". J.R. Alvarez and P. Rez, Solid State Commun., 1998, 108, 37-42.

"Schemes to determine the Crystal Potential Under Dynamical Conditions Using Voltage Variation", P. Rez, Acta Cryst, 1999, A55, 160-167.

* "Calculation of Near Edge Structure for α-quartz", J.R. Alvarez, P. Rez, L.AJ. Garvie, 1998, Proc. 14th. International Conference on Electron Microscopy, Vol 2, 633-634.

* "Determining the Crystal Potential Under Dynamical Diffraction Conditions Using Voltage Variation", P. Rez, 1998, Proc. 14th. International Conference on Electron Microscopy, Vol 1, 617-618.

"Calculation of Near Edge Structure", P. Rez, J.R. Alvarez, C.J. Pickard, Ultramicr., 1998, 78, 175-183.

"Carotene as a Molecular Wire: Conducting Atomic Force Microscopy", G. Leatherman, E.N. Durantini, J.D. Gust, T.A. Moore, A.L. Moore, S. Stone, Z. Zhou, P. Rez, Y.Z. Liu and S.M. Lindsay, J. Phys. Chem B, 1999, 103, 4006-4010.

"Calculation of Cohesion and Changes in Electronic Structure Due to Impurity Segregation at Boundaries in Iron", P. Rez and J.R. Alvarez, Acta Metall., 1999, 47, 4069-4075.

"$BN_{05}O_{0.4}C_{0.1}$ Carbon and Oxygen Substituted Hexagonal BN", L.A.J. Garvie, H. Hubert, P. Rez, P.F. McMillan and P.R.Buseck, J. of Alloys and Compounds, 1999, 290, 34-40.

"Electron energy-loss spectrometry on lithiated graphite", A. Hightower, C.C. Ahn, B. Fultz and P. Rez, Appl. Phys. Lett, 2000, 77, 238-240.

" Can high-angle annular dark field scattering be represented by a local operator?" P. Rez, Ultramicr. 2000, 81,195-202.

"Bonding in alpha-quartz (SiO_2): A view of the unoccupied states", L.A.J. Garvie, P. Rez, J.R. Alvarez, P.R. Buseck, A.J. Craven and R. Brydson, Am. Mineral, 2000, 85, 732-738.

"Calculation of Electronic Properties of boundaries in Ni_3Al", J.R. Alvarez and P. Rez, Acta Materiala, 2001, 49, 795-802.

"Scattering Cross Sections in Electron Microscopy and Analysis", P. Rez, Microsc. Microanal.,2001,7, 356-362.

* "Which is better for Protein Imaging: Phase Contrast TEM or Annular Dark Field STEM", P. Rez, Microsc. Microanal.,2001, 7, suppl 2, 382-383.

* "Inner Shell Edge Jump Ratios in Electron Energy Loss Spectrometry", P. Rez, Microsc. Microanal.,2001, 7, suppl 2, 1170-1171.

* "Electronic Structure Analysis of $LiCoO_2$ using Electron Energy Loss Spectroscopy (EELS)", J. Graetz, A. Hightower, C. C. Ahn, P. Rez, and B. Fultz, Microsc. Microanal.,2001, 7, suppl 2, 1186-1187.

"Electronic structure of chemically-delithiated $LiCoO_2$ studied by electron energy loss spectrometry", J. Graetz,, A. Hightower, C.C. Ahn, R. Yazami, P. Rez and B. Fultz., J. Phys. Chem., 2002, B 106, 1286-1289.

* "Scanning Electron Microscopy and Atomic Force Microscopy of the Ring Structures in Human Calcium Oxalate Urinary Stones", P. Rez, H. Fong and M. Sarikaya, Microsc. Microanal.,2002, 8 (suppl. 2), 746-747.

"Comparison of phase contrast transmission electron microscopy with optimized scanning transmission electron annular dark field imaging for protein imaging", P. Rez, Ultramicr., 2002, 96, 117-124.

"Electron ionization cross sections for atomic subshells", P. Rez, Microsc. Microanal., 2003, 9, 42-53.

"Accurate cross sections for microanalysis", P. Rez, J. Res. Natl. Inst. Stan., 2003, 107, 487-495.

* "The Giant Core Hole Effect in Electron Energy Loss Spectroscopy", P. Rez, L.A.J. Garvie and A.V.G. Chizmeshya, Microsc. Microanal., 2003, 9 (suppl 2), 828-829.

* "The Effect of Impurities on Grain Boundary Cohesion in Iron", J.S. Braithwaite and P. Rez, Microsc. Microanal., 2003, 9 (suppl 2), 590-591.

* "The Oxygen K Edge in Strontium Titanate and Lanthanum Titanate", M.P. Kocher, D.A. Muller and P. Rez, , Microsc. Microanal., 2003, 9 (suppl 2), 842-843.

"White lines and d-band occupancy for the 3d transition-metal oxides and lithium transition-metal oxides", J. Graetz, C.C. Ahn, H. Ouyang, P. Rez, B. Fultz, Phys. Rev B, 2004, 69 (23): Art. No. 235103

"Nanometer-scale measurements of $Fe^{3+}/\Sigma Fe$ by electron energy loss spectroscopy: A cautionary note",L.A.J. Garvie, T.J. Zega, P. Rez and P.R. Buseck, Amer. Mineralogist, 2004, 89, 1610-1616.

"Energy Loss Fine Structure", Chapter 4, P. Rez in "Transmission Electron Energy Loss Spectometry in Materials Science and the EELS Atlas", Wiley-VCH, Weinheim, ed C. Ahn, 2004.

"Entropy of intercalation of Li_xCoO_2", Y Reynier, J. Graetz, T. Swan-Wood, P. Rez, R. Yazami and B. Fultz, Phys. Rev. B, 70, 2004, :Art No. 174304.

"Grain Boundary Impurities in Iron", J.S. Braithwaite and P. Rez, Acta Materialia, 53, 2005, 2715-2726.

*I "Local Electronic Structure of Layered $Li_xNi_{0.333}M_{0.33}Co_{0.333}O_2$" S Miao, M. Kocher, B Fultz, P. Rez, Y Ozama, R. Yazami and C.C. Ahn, ECS Meeting Abstracts, 2005, 127 (2 page)

* "Does Ni change its charge state in $Li_xNi_{0.5}Mn_{0.5}O_2$", M. Kocher and P. Rez, ECS Meeting Abstracts, 2005, 128 (2 page)

*I "In situ Observation of the Effect of Synthesis Conditions on the Growth Rates and Mechanisms of Carbon Nanotubes", R. Sharma, P. Rez, M.M.J. Treacy, Microscopy and MicroAnalysis, 2005, 212-213.

"In situ observation of the growth mechanisms of carbon nanotubes under diverse reaction conditions", R. Sharma, P. Rez, M.M.J. Treacy and S.J. Stuart, J. Electron Microsc., 54, 2005, 231-237.

"Local electronic structure of layered $Li_xNi_{0.5}Mn_{0.5}O_2$ and $Li_xNi_{1/3}Mn_{1/3}Co_{1/3}O_2$ ", S. Miao, M. Kocher, P. Rez, B. Fultz, Y. Ozama, R Yazami and C.C. Ahn , J. Phys. Chem. B 109, 2005, 23473-23479.

"Direct observations of the growth of carbon nanotubes using in-situ transmission electron microscopy", R. Sharma, P. Rez and M.M.J. Treacy, J Surf. Sci and Nanotech., 4, 2006, 460-463.

*I "Perfection in Theoretical Modeling of Electron Energy Loss Spectra: Is it attainable?", P. Rez, Microscopy and Microanalysis, 12, (suppl 2), 2006, 108-109.

"In situ TEM observations of carbon nanotube growth by the catalytic decomposition of acetylene", M.M.J. Treacy, M. Brown, P. Rez, G.H. Du, R. Sharma, Microscopy and Microanalysis, 12, (suppl 2), 2006, 786-787.

"Local electronic structure of layered $Li_xNi_{0.5}Mn_{0.5}O_2$ and $Li_xNi_{1/3}Mn_{1/3}Co_{1/3}O_2$", S. Miao, M. Kocher, P. Rez, B. Fultz, Y Ozama, R Yachimi, C.C. Ahn, J. Phys. Chem. B 109, (2006), 23473-23479.

"Dynamic observations of the effect of pressure and temperature conditions on the selective synthesis of carbon nanotubes", R. Sharma, P. Rez, M. Brown, G. Du and M.M.J. Treacy, Nanotechnology, 18, (2007) Art no 125602.

"Models for protein binding to calcium oxalate surfaces", A. Gul and P. Rez, Urol. Res. 35, (2007), 63-71.

"Local electronic structure of olivine phases of Li_xFePO_4", S. Miao, M. Kocher, P. Rez, B. Fultz, R Yachimi, C.C. Ahn, J. Phys. Chem. A 111, (2007), 4242-4247.

"Morphology of crystals in calcium oxalate kidney stones", S. Sandersius and P. Rez, Urol. Res. 35, (2007) ,287-293.

"Dose, exposure time and resolution in serial X-ray crystallography", D. Starodub, P. Rez, G. Hembree, m. Howells, D. Shapiro, H.N. Chapman, P. Fromme, K. Schmidt, U. Weierstall, R.B. Doak and J.C.H. Spence, J. Synchrotron Rad., (2008) 15, 62-73.

INVITED PRESENTATIONS

"A Transport Equation Theory of Electron Backscattering and X-ray Production" D.J. Fathers and P. Rez, Proc. 13th Annual MAS Conference, Ann Arbor, Michigan, 1978.

"A Transport Equation Theory of Electron Backscattering" D.J. Fathers and P. Rez, SEM/1, Washington DC, 1979.

"Computer Control of STEM for X-ray and Energy Loss Imaging" P. Rez and C. Ahn, 39th EMSA, Atlanta, 1981.

"A Transport Theory of Electron Scattering in Solids" D.J. Fathers and P. Rez, Electron Beam Interactions with Solids Workshop, Monterey, CA, 1984.

"Elastic Scattering of Electrons by Atoms" P. Rez, Electron Beam Interactions with Solids Workshop, Monterey, CA, 1984.

"Computer Systems Architecture for Image and Spectral Processing", P. Rez and D.J. Fathers, 45th EMSA Baltimore, MD, 1987.

"Computer Systems in Microscopy - The Big, The Small and The Ugly", 46th EMSA Milwaukee, WI, 1988.

"Recent Developments in Automated Transmission Electron Microscopy", W.J. de Ruijter, P. Rez and D.J. Smith, 47th EMSA, San Antonio, TX, 1989.

"Electron Energy Loss Fine Structure", P. Rez, APS March Meeting, New York, NY, 1987

"Interpretation of Energy Loss Near Edge Structure", X. Weng and P. Rez, Scanning Electron Microscopy, Long Beach, CA, 1989.

"Electron Energy Loss Near Edge Structure", Xudong Weng and Peter Rez, 47th EMSA, San Antonio, TX, ed. G.W. Bailey, 1989.

"The Electron Microscope and the Computer: Present Trends and Future Prospects"
P. Rez and W.J. deRuijter, 12th Internatonal Congress on Electron Microscopy,
Seattle, WA, 1990.

"Interpretation of Near Edge Structure" P. Rez, X. Weng and H. Ma, Tahoe EELS Workshop, Tahoe, 1990.

"Acquisition Hardware for Imaging",P. Rez, J.K. Weiss, W.J. deRuijter, Pfefferkorn Conference on Image Processing, Cambridge, 1991.

"Calculation of Near Edge Structure", P. Rez, J. Bruley, P. Brohan , M.C. Payne, L.A.J. Garvie, Leukerbad EELS conference, 1994

"Calculation of Near Edge Structure". P. Rez, J. Bruley, MAS Conference, Breckenridge, CO, 1995.

"Atomic Force and Low Voltage Scanning Microscopy Evidence for Aggregation in Oxalate Urinary Stone", P. Rez, S.M. Altmann, H.H. Dorian, G.W. Drach. Urolithiasis 1996, Dallas, TX, 1996.

"Correlative Microscopy of Urinary Calculi: Light Microscopy, Scanning Eelectron Microscopy and Atomic Force Microscopy", P. Rez, K. Streib, ROCK Society, "Steamboat Springs", CO, 1997.

"Calculation of Near Edge Structure", P. Rez, J. Alvarez, C.J. Pickard, TARA Conference, Port Ludlow, WA, 1998.

"Calculation of Near Edge Structure", P. Rez, EELS and X-ray Spectroscopy Conference, Tergensee, Germany, 2000.

“Local Electronic Structure of Layered $Li_xNi_{0.333}M_{0.33}Co_{0.333}O_2$” S Miao, M. Kocher, B Fultz, P. Rez, Y Ozama, R. Yazami and C.C. Ahn, , Los Angeles, 2005.

"In situ Observation of the Effect of Synthesis Conditions on the Growth Rates and Mechanisms of Carbon Nanotubes", R. Sharma, P. Rez, M.M.J. Treacy, MSA Hawaii, 2005.

Colloquia and Seminars

University of Bristol (2 times), CEA Grenoble, CNRS Toulouse, ATT Bell Labs (2 times)
IBM Yorktown Heights (2 times), IBM San Jose, Imperial College London (2 times),
Fritz-Haber Institut Berlin, University of Glasgow, University of Illinois (Urbana), Cal Tech,
University of Darmstadt (2 times), Technische Universitat Vienna, Universite Paris-Sud,
SERC Synchrotron Laboratory Daresbury, Cavendish Laboratory, Cambridge,Tulane University.
MIT, Cornell, University of Washington (Physics and Materials Science), Oxford University (Materials Science)
University of Barcelona (Physics), Medical College of Wisconsin, University of Wisconsin (Milwaukee), PNNL,
Weizmann Institute, Israel (3 times), Technion, Israel

Grants

"Studies of Subnanometer Crystalline Regions Using Coherent Electron Microdiffraction"
NSF DMR 86-18282, $104,800, 1987-1990, PI JM. Cowley, co PIs P. Rez, J.H. Butler (Exxon)
NSF DMR 90-14957, $210,000, 1987-1990, PI JM. Cowley, co PI P. Rez,

"Coherent Electron Nanodiffraction Studies"
Exxon Chemical Company , $106,850, 1987-1990, PI J.M. Cowley, co PI P. Rez

"Calculation of Electron Energy Loss Fine Structure", ASU FGIA 1986, $5000, P. Rez

"The Center for High Resolution Electron Microscopy" $480,000 per annum, 1988-1991,.
NSF DMR 91-15680, DMR 93-14326, P.I. J.M. Cowley, D. J. Smith, co PIs P. Buseck, L Eyring, P. Rez, J.C.H. Spence, J.A. Venables.

"Mapping Organics with Nanometer Resolution", NSF BIR 94-09113, 1995, $22,452, P.I. S. Lindsay, co P.I. P. Rez

"High Resolution Atomic Force and Scanning Electron Microscopy of Calcium Oxalate Urinary Stones", ASU FGIA , $5030 , 1995, P. Rez.

Scanning Conductance Probe Microscope for Chemical Mapping, NSF BIR 95-13233, 3/1/96-2/28/97, $153,914,
P.I. S.M. Lindsay, co PIs P. Rez, T.A. Moore, J.D. Gust

"Imaging of Charge Transfer Effects Due to Interfacial Segregation", NSF DMR -93-06253, 1994-1997, $129143 ,
P. Rez
(subcontract from joint grant with Prof. D.B. Williams (Lehigh) of $540,000)

"Quantitative Imaging and Analysis of Grain Boundary Segregation", NSF DMR 99-72670,1999-2002, $187453
P. Rez
(subcontract from joint grant with Prof. D.B. Williams (Lehigh))

“The Electronic Structure of Lithium Battery Materials”, DOE DEFG0203ER 15425, 2003-2006, $174000, P. Rez

“Morphology of Calcium Oxalate Crystallites in Human Kidney Stones”, FGIA, 2004, $6999, P. Rez

“Controlled Synthesis of Nanotubes with Desired Properties”, NSF NER, 2005-2006, $326202, PI R. Shama, CoPIs P. Rez, M.M.J. Treacy

“Calculation of Charge Thermalization of Scintillators”, Los Alamos National Lab, 8/1/2006-3/31/2007, $50,000, P.I. P. Rez,

“Dynamic Observation of Carbon Nanotube Growth on Isolated Catalyst Nanoparticles”, NSF, $383,340 7/1/2006-7/1/2009, ,P.I. R. Sharma, co P.I,s P. Rez and M.M.J. Treacy

"Calculation of Complete Electromagnetic Response of Large Macromolecules", DTRA, $471,384 (selected for award, DTRA ran out of money), P.I. P. Rez

"Modeling of Electron Cascades in High Z Molecular Cluster Scintillator Materials", Los Alamos National Lab, $150,000, 4/1/2008-3/31/2011, P. Rez