BIOGRAPHICAL SKETCH AND PROFESSIONAL ACTIVITIES
RENSSELAER POLYTECHNIC INSTITUTE

DUQUETTE, DAVID J.

Department: Materials Science and Engineering

Rank:	John Tod Horton Professor of Engineering
1970	Assistant Professor
1973	Associate Professor
1976	Professor
1999	Associate Director, Center for Advanced Interconnects Science and Technology
2000-2008	Department Head
2008	John Tod Horton Professor of Engineering

Education;

B.S. United States Coast Guard Academy, 1961
Ph.D. Massachusetts Institute of Technology, 1968

II. Professional Experience

U.S. Coast Guard, Commissioned Officer	6/61-9/65
Massachusetts Institute of Technology Dept. of Metallurgy & Materials Science Research Assistant	9/65-9/68
Pratt and Whitney Aircraft Advanced Materials Research & Development Lab. Senior Research Associate	9/68-9/70
Imperial College of Science & Technology University of London Visiting Professor of Metallurgy	4/73-9/73
Max-Planck-Institut fur Eisenforschung Dusseldorf Visiting Senior Scientist (Humboldt-Preis-Träger)	9/83-6/84

III. Student Thesis Supervision

1. Theses Completed

a. Masters

H. Masuda, "Corrosion Fatigue Behavior of Polycrystalline Copper", 9/71-9/73.

L. Corsetti, The effects of Applied Potentials on the Corrosion Fatigue Behavior of 7075-T6 Aluminum", 9/71-1/75.

R. Bosch, "The Effect of Microstructure on Room Temperature Low-Cycle Fatigue of RA-333", 2/74-6/75.

P. Andresen, "The Effect of Environment and Applied Current on Corrosion Fatigue of Cu-7.8 Al", 9/72-12/74.

P. Collins, "The Corrosion Fatigue Properties of a Duplex Aluminum Bronze Alloy", 9/74-6/76.

R. Bentley, "The Effect of Environment and Applied Current Potential on the Corrosion Fatigue Properties of an As-Cast Duplex Aluminum Bronze Alloy", 9/76-12/78.

D. Gaul, "The Mechanism of Fretting Fatigue in a Quenched and Tempered 4130 Steel", 9/76-1/78.

S. LeBeau, "Corrosion Fatigue Crack Propagation of 7075 Aluminum", 9/76-8/78.

J. Sakai, "The Effect of Heat Treatment and Applied Potential on Corrosion Fatigue of AISI 304 Stainless Steel in 1.0N H_2SO_4 Solution", 9/76-9/78.

E. Tsao, "Stress Corrosion Cracking of a Ferritic Stainless Steel", 9/77-1/79.

G. Owens, "Environmental Effects on the Fatigue Performance 7050 Aluminum", 9/78-1/81.

M. Lambert, "Characterization of Electroless Plated Nickel Phosphorus Films", 9/80-12/81.

P. Pallag, "Frequency Effects on the Corrosion Fatigue of 7075 Aluminum", 9/79-12/82.

K. Dannemann, "Microstructure and Fatigue Behavior of Three Ni-Base Eutectic Composites", 9/80-12/82.

R. Wistrom, "The Effect of Molybdenum on Pitting Corrosion of Ferritic Stainless Steel", 1/83-9/85.

J. Montrym, "Oxidation of Ni_3Al Intermetallics", 9/86-9/88.

E. Motyka, "SCC of Alloys for Fusion Reactors", 9/88-9/90.

Hsiao-Hung Lu, "Effects of Strong Oxidizers (Cl_2 and O_3) on the Corrosion Behavior of Engineering Alloys, 9/85-9/91.

J. Scott, "Hydrogen Embrittlement of Intermetallic Based Composites", 9/90-6/92.

K. Page, "Fabrication of SIC Coated Carbon Fiber-Glass Matrix Composites", 9/90-6/92.

B. Brown, "The Effects of Ozone on the Corrosion Behavior of 304 Stainless Steel, Monel 400 and Naval Brass in Artificial Sea Water", 9/91-9/93.

W. Wyllie, "The Effects of Water Radiolysis on the Corrosion and Stress Corrosion Behavior of Type 316 Stainless Steel in Pure Water", 9/91-9/93.

A. Rojas, "Aircraft Corrosion", 9/91-9/93.

A. Sandoval, "Powder Processing and High Temperature Oxidation Testing of Single Crystal Alumina Fiber Reinforced NiAl Matrix Composites", 9/92-6/94.

J. Smith, "Corrosion of Alloys in Microbial Metabolic Solutions", 9/94- 9/97

M. Lieblich, "Oxidation Behavior of SiC/SiC and SiC/Al_2O_3 Composites in Air and in Water Vapor", 9/95-9/97

J. Stevens, "Corrosion Behavior of Nickel Based alloys in Ozonated Seawater", 9/96-6/98

S. Levallee, "The Effects of Polymer Based Materials on the Crevice Corrosion Behavior of Titanium", 9/96-6/98

C. Lee, "Pulse Plating of Copper for Interconnects" 6/98-6/00

A. Kolman, "Low Cycle Fatigue Behavior of Nickel based Alloys at Elevated Temperatures", 9/97-6/00

T. Schumaker, "Oxidation Behavior of Nickel Based Alloys for Steam Turbine Applications", 9/97-6/00

M. Shaw “Limits of Electroplating for USLI Applications” 9/99-12/00

H. Ikeda “Hydrogen Embrittlement of High Strength Stainless Steels” 9/98-12/00

A. Krishnamoorthy “Pulse Plating of Copper for ULSI Interconnects” 9/98-12/00

S. Kim “Optimization of Bath Chemistry for Seedless Copper ECD on Titanium Nitride” 9/99-12/01

H. Wolfe “The Effects of Grain Size on the Mechanical Properies of FeAl” 9/00-5/02

L. Loparco “Electrochemical Planarization of Copper” 9/00-12/02

T. Brandman “The Effects of Grain Size on the Oxidation Behavior of FeAl” 9/00-12/02

J. Wuthrich, "Stress Corrosion Cracking of Nickel Alloys in High Temperature Water" 6/98-9/02

H. Weiss “SCC of Nickel Based Alloys for Nuclear Applications”, 9/02-9/05

b. Doctoral

D. Sherman, "The Corrosion and Stress Corrosion Cracking Behavior of Stainless Steel Weldments Containing Ferrite", 9/70-8/73.

E. Smith, III, "The Corrosion Fatigue Behavior of a High Purity Al-Zn-Mg-Cu Alloy", 9/71-6/77.

H. Hahn, "Corrosion Fatigue Behavior of Copper and Copper Base Alloys", 9/72-6/77.

R. Jacko, "Corrosion Fatigue of Aluminum Alloy 7075", 9/73-9/78.

C. Koburger, "High-Cyclic Fatigue Behavior of a Cobalt-Based Eutectic Alloy", 9/72-9/78.

P. Andresen, "The effect of Environmental Variables on the Stress Corrosion Cracking Behavior of Type 304 Stainless Steel in High Temperature Water Environments", 1/75-1/79.

P. Manning, "The Effect of Environmental Variables on the Pitting Corrosion Behavior of Single and Duplex Phase 304L Stainless Steel", 9/74-1/79.

W. Baeslack, "Stress Corrosion Cracking of Duplex Stainless Steel Weldments", 9/75-9/79.

C. Austin, "Crack Propagation in Directionally Solidified Eutectic Alloys", 9/74-1/80.

C. Garcia, "Effects of Potentials on the Fatigue Behavior of Nickel in 0.5$\underline{N}$ H_2SO_4 Solution", 9/77-6/82.

R. Bentley, "The Effect of Oxygen and Water Vapor on the Fretting Fatigue Behavior of SAE 4130 Steel", 9/78-6/82.

A. Poznansky, "Stress Corrosion Cracking of Type 304 Stainless Steel in Chloride/Sulfate Solutions", 9/78-6/82.

J. Kapp, "Crack Growth in Mercury Embrittled Aluminum Alloys Under Cyclic and Static Loading Conditions", 9/79-9/82.

S. Kudva, "Surface Effects on Fretting Fatigue of Medium Carbon Steels", 9/78-12/82.

R. Ricker, "Hydrogen Embrittlement of a Ternary Al-Mg-Zn Alloy", 1/79-12/83.

W. Cieslak, "A Study of the Pit Initiation Behavior and Passivity of Ferritic Stainless Steels", 6/79-5/83.

S.V. Golwalkar, "Creep-Fatigue Environmental Interactions in Ni-Base Superalloys", 12/79-8/84.

J.G. Chung, "SCC of W-Fe-Cr Alloys", 9/80-12/84.

J. Might, "A Study of the Stress Corrosion Cracking Behavior of Low Carbon Steel in Aluminum Carbonate Solution", 9/80-12/85.

S.J. Choe, "High Temperature Low Cycle Fatigue and Correlation to Crack Growth Rate in Two Nickel Base Superalloys", 9/80-12/85.

R. Balasubramaniam, "Corrosion and Stress Corrosion of Al-Li-X Alloys", 6/85-6/91.

S. Chen, "Corrosion Fatigue of Al-Li Alloys", 9/83-6/91.

R. Iacocca, "Oxidation Behavior of Carbon Fiber-Glass Matrix Composites", 6/88-12/91.

J. Seidel, "Corrosion Fatigue of Single and Bi-crystalline Nickel", 9/86-5/92.

J. Fish, "Oxidation of Alumina Reinforced Gamma Titanium Aluminide Composites", 9/88-8/92.

P. Korinko, "Oxidation Behavior of Ti and Nb Aluminides", 9/87-12/92.

L. Kolaya, "Structure and Properties of Lamellar Composites Produced by Sputtering", 9/9l-9/94

J. Steigerwald, "CMP of Copper for Electronic Interconnects", 9/91-1/95

W. Wyllie, "Corrosion Behavior of Passive Alloys in Ozonated Artificial Seawater Solutions", 9/93-9/97

G. Spencer, "Hydrogen Embrittlement of Low Alloy Steels containing Vanadium", 9/90-9/97

B. Brown, "The Effect of Ozone on the Corrosion Behavior of Ni-Cr-Mo Alloys", 9/91-6/98

C. Sainio, "A Fundamental Study of the Electrochemistry of Copper in Ammonia Based Solutions for Chemical Mechanical Polishing of Interconnects", 9/93-6/98

P. Rosecrans, "Effect of Chromium on the oxides and Stress Corrosion Cracking Behavior of Nickel Alloys in High Temperature Water", 9/93-12/98

D. Permana, "CMP of Metals and Polymer-based Dielectrics", 9/96-6/00

L. Graham, "Electrochemical Studies of Copper Plating for Electronic Interconnects", 9/96-6/00 (with C. Steinbruckel)

B.-C. Lee, CMP of Copper in Low k Dielectrics", 9/98- 12/00 (with R. Gutmann)

S. Kim, “Seedless Electrodeposition of Copper on Non-Metallic Substrates for Micro-electronic Applications”, 1/02 – 12/05

C. Guiamarra, “Fretting Fatigue of High Strength Aluminum Alloys”, 9/01- 12/05

Andrew Mansson, “CMP of Copper for ULSI Applications”, 9/02 – 12/05

J. Smith, "SCC of Nickel Based Alloys in Nuclear Reactor Environments", 9/97- 2/06

N. Lay, “Electrochemical Deposition of Copper on Non-metallic Substrates” 9/02 – 6/06

P. Hale, “Microstructure Effects in the Oxidation of Iron Aluminide”, 9/03 – 8/07

L. Yang, “The effect of Thermal Processing on Microstructure and Mechanical Properties in a Nickel-Iron Alloy”, 9/01 – 8/07

2. Theses in Progress

a. Masters

K. Gerardin, Electrochemical Deposition of Copper on Non-metallic Substrates” 1/06 -

b. Doctoral

D. Rappold, “Elemental grain boundary segregation in nickel alloys", 9/98-

C. Course and Curriculum Development

34.431 Corrosion (1971)
34.697 Advanced Corrosion & Corrosion Control (1972)

30.250 Materials I (reorganization) (1973)
34.697 Advanced Fracture (1975)
34.697 Advanced Corrosion & Corrosion Control
30.252 Materials II (1977)
36.6962 Advanced Fracture (1981)
36.696 Fundamentals of Materials Engineering (1982)
36.696 High Temperature Composite Materials (1987)
36.421 Mechanical Properties of Materials (1990)
MTLE 4960, Alloy Design, (2005)

Publications

A. Books, Monographs

ALLOY DESIGN, Academic Press, Ed. G.S. Ansell and J.K. Tien, 1976, p.251,chapter entitled, "Alloy Design for Aqueous and Stress Corrosion Resistance".

METALS HANDBOOK, Vol. 8, "Failure Analysis and Prevention", Contributions to chapters entitled: "Stress Corrosion Cracking", "Liquid Metal Embrittlement", "Hydrogen Damage Failures", "Corrosion Fatigue Failures", Am. Soc. for Metals, Metals Park, Ohio, 1975.

ENVIRONMENT SENSITIVE FRACTURE OF METALS AND ALLOYS,
Ed. D.J. Duquette, T. Crooker, A. Sedriks and R. Wei, Office of Naval Research, Arlington, VA, 1987.

CRITICAL ISSUES IN THE DEVELOPMENT OF HIGH TEMPERATURE STRUCTURAL MATERIALS, Ed. N. S. Stoloff, D. J. Duquette and A. F. Giamei, TMS-AIME, Warrendale, PA, 1993.

HANDBOOK OF CASE HISTORIES IN FAILURE ANALYSIS, VOL. 2
Chapter entitled: "Mercury Liquid Embrittlement Failures of 5083-0 Aluminum Alloy Piping", with J. J. English, ASM International, Metals Park, Ohio, 1993.

B. Journal Articles

See attached list.

V. Current Research Grants

A. Proposals Approved and Funded

“Center for Advanced Interconnects Science and Technology”
SRC $3,110,000/a (with 18 others)

"Grain Size Modification in Iron and Titanium Aluminides"
Philip Morris $150,000/a with R. Wright

B. Proposals Pending

"Materials World Network – Processing and Properties of Iron Aluminides" NSF, $902K/3yrs, (with R. Wright)

"Research and Development of Advanced Fuel Cells" Sarnoff/DOE, $291K/1yr

"Advanced Materials for New Generation Nuclear Reactors", DOE, $3M/3yrs, pre-proposal with Huang, Liu, Dvorak, Ajayan)

B. Research Interests

Current research interests include the physical, chemical and mechanical properties of metals and alloys with specific reference to studies of cyclic deformation behavior as affected by environment and temperatures, basic corrosion studies, and stress corrosion cracking. Each of these areas is particularly important to the ultimate use of metallic materials in engineering applications. For example, current studies of the effects of aqueous environments on the fatigue behavior of high strength aluminum alloys are directed toward an understanding of accelerated failures of these alloys in such applications as aircraft structural materials. Fundamental studies of fatigue crack initiation in high purity metals and alloys are directed toward a basic understanding of how surface/environment interactions affect cyclic stress induced information. The physics and chemistry of thin film-environment interactions are being studied with the specific aim of determining the film characteristics that resist break-down by specific ions or by stress. These studies include the phenomena of stress corrosion cracking, pitting and crevice corrosion. Current research efforts include the chemistry and electrochemistry of tailored electrolytes for optimizing chemical mechanical planarization of interconnects for electronic applications, and electrodeposition of copper on novel barrier layers for interconnects on wafers.

VI. Reviews of Journals, Manuscripts, Books and Research Proposals

Page Editor, "Corrosion in Progress", CORROSION, National Association of Corrosion Engineers (1971-1973).

Currently review 8-12 manuscripts per year for Metallurgical Transactions (ASM/AIME), Corrosion (NACE) and Journal of the Electrochemical Society.

Currently review 8-12 proposals per year for NSF, National Research Council, Office of Naval Research.

Editorial Board, Advances in Mechanics and Physics of Surfaces.

Key Reader, Metallurgical Transactions (1980-1988).

VII. Service

A. Service to University

1. University, school and department committees and dates for each.

Ad Hoc Advisory Committee for an Engineering Physics Curriculum (1970-1972).

Pre-Engineering Science Core Committee (1972-1974).

Departmental Library Representative (1973-1974).

Engineering School Committee to Study Organization (1974).

Faculty Council (1975-1977), (1985-1987).

Student Affairs Committee (1975-1977).

Nominating Committee (1977-1978), (1982-1983).

Compensation Committee (1990-1994).

Faculty Committee (1985-1987).

Trustee's Committee on Student Affairs (1976-1977).
Faculty Budget Committee (1979-1983).
Chairman (1980-1981).

University Planning Committee (1985-1987).

Retirement Task Force, Co-Chairman (1990-1992)

School of Engineering Curriculum Committee (1995-1997)

School of Engineering Faculty Rewards ad-hoc Committee (1997-1999)
Chairman

Center for Advance Interconnects Science and Technology, Associate Director (1999-2006)

B. Professional Societies

ASM International,

Campbell Lecture Award Committee (1990-1993), Chairman (1992-1993)
Fellows Selection Commitee (1994-1997), Chairman (1996-1997)

American Institute of Metallurgical Engineers,
The Metallurgical Society
Committee on the Metallurgical Profession
(Jan. 1971-present) (Secretary 1973)
Membership Committee (May 1972-1975)
Nominating Committee (1973-1975)
Met. Trans. Review Board (1980-1988)
Institute of Metals Division
Physical Metallurgy Committee (May 1972-present)
Corrosion Resistant Metals Committee
(May 1973-present)
Hudson-Mohawk Chapter
Executive Committee (May 1971-May 1974)
New England Research Conference (June 1971-1973)
Treasurer (1974-1975)
Vice-Chairman (1975-1976)
Chairman (1976-1977)

National Association of Corrosion Engineers
Awards Committee (1980-1983) (1990-1994)
Chairman, Whitney Award Selection Committee (1994-1997)
Fellows Selection Committee (1997-)

The Electrochemical Society
Corrosion Division (1980-present)
Electronics Division (1994-present)

VIII. Government Service

National Academy of Sciences/National Academy of Engineering
Drilling Technology Panel (1978-1979)
Stress Corrosion Cracking Test Methods (1980-1981)
Electrochemical Corrosion Panel (1985-1986)

U.S. Naval Research and Development Center, Annapolis
Review Committee on High Strength Steel Weldments
(Stress-Corrosion) (1979-1982)

Pacific Northwest Laboratories
Research Review Committee (1980-1983)
Chairman (1983)

Argonne National Laboratory

Ad Hoc Panel for the Review of the Corrosion Programs of the Materials Characterization Center and Nuclear Waste Repository Sites (1984-1986)

NASA Space Processing Advisory Committee (1976-1986)

Scientific Review Group, Canadian Nuclear Waste Disposal Program
Chairman, Engineered Barriers Committee (1992-1999)

United States Nuclear Waste Technology Review Board (2002-present)

National Institute for Nano-Engineering (NINE), Member Board of Directors (2007 – present)

IX. Honors and Awards

Society of the Sigma XI (1966)

Hudson-Mohawk Chapter of AIME award for distinguished services (1978)

Alcoa Foundation Award for Outstanding Research Achievement (1978-1979)

Case Centennial Scholar, Case-Western Reserve University (1980)

Humboldt Senior Scientist Prize, Alexander von Humboldt Foundation (1983)

Fellow, American Society for Metals (1986)

Chairman, Gordon Research Conference on Corrosion (1988)

President, Alpha Sigma Mu, (National Honor Society) (1987-1988)

Acta Metallurgica, Outstanding Paper Award (1987)

Honorary Member, Alpha Sigma Mu (National Honor Society) (1988)

Willis Rodney Whitney Award for Excellence in Corrosion Science,
National Association of Corrosion Engineers (1990)

Alpha Sigma Mu Distinguished Lectureship, ASMI (1991)

Fellow, National Association of Corrosion Engineers (1994)

Jerome Fischbach Faculty Travel Award, Rensselaer Polytechnic Institute (1997)

Distinguished Career Award, Hudson-Mohawk Section of TMS (2000)

National Academy of Sciences Nomination and Presidential Appointment to the United States Nuclear Waste Technology Review Board (2002)

Fellow, The Electrochemical Society (2003)

X. Sabbatical Leaves, Off-Campus Study Programs, Foreign Professional Travel

Leave of Absence (Visiting Professor of Metallurgy) Imperial College of Science and Technology, University of London, 4/73-9/73.

Attendee and Speaker, 3rd International Conference on Fracture, Munich, Germany, 4/73.

Attendee, 3rd International Conference on Strength of Metals and Alloys, Cambridge, England, 9/73.

Attendee, Speaker and Organizing Committee Member, NATO Study Institute, "Surface Effects in Crystal Plasticity", Hohegeiss,
Federal Republic of germany, 9/75.

Attendee and Speaker, 4th International Conference on Metals and Alloys, France, 9/76.

Attendee and Keynote Speaker, International Conference on Mechanisms of Environment Sensitive Cracking of Materials, Surrey, England, 4/77.

Attendee and Speaker, 2nd International Congress on Hydrogen in Metals, Paris, France, 6/77.

Attendee and Speaker, European Corrosion Group, Workshop on SCC, Firiminy, France, 9/78.

Attendee, Speaker and Session Chairman, 5th International Conference on Metals and Alloys, Aachen FRG, 8/79.

Invited Lecturer (3 lecture series), Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland, 9/79.

Keynote Lecturer, NATO AGARD Meeting Corrosion and Corrosion Fatigue of Aluminum Alloys, Cesme, Turkey, 4/81.

Invited Lecturer, ETH, Zurich, Switzerland, 4/91.

Attendee, Session Chairman and Organizing Committee Member, NATO Study Institute "Atomistics of Fracture", Corsica, France, 6/81.

Invited Lecturer, Central Iron and Steel Institute (4 lecture series), Beijing China, 8/82.

Attendee and Speaker, 6th International Conference on Strength of Metals and Alloys, Melbourne, Australia, 8/82.

Invited Lecturer, Tokyo Institute of Technology, Tokyo, Japan, 8/82.

Invited Lecturer, Nippon Kokan Steel Company, Tokyo, Japan, 8/82.

Leave of Absence (Visiting Professor of Metallurgy and Humboldt Preis-Träger) Max-Planck Institute für Eisenforschung, Federal Republic of Germany, 9/83-6/84.

Invited Lecturer, U.S.-Japan Symposium on Corrosion, Nikko, Japan, 3/85.

Invited Lecturer, U.S.-Argentine Workshop on Bio-Deterioration of Metals and Alloys, LaPlata, Argentina, 4/85.

Invited Lecturer, First Austrian Materials Science Symposium, Lech, Austria, 2/86.

Invited Lecturer, NATO Adv. Studies Institute on Fracture, Bad Reichenhall, Federal Republic of Germany, 6/86.

Invited Lecturer, Brown-Boveri Research Laboratory, Winterthur, Switzerland, 1/87.

Invited Lecturer, Organizing Session, U.S.-France Workshop on Ocean Engineering, Paris, France, 5/87.

Invited Lecturer, International Conference on Corrosion Fatigue, Sheffield, England, 4/88.

Organizer and Invited Lecturer, U.S.-France Workshop on Materials in Ocean Environments, Paris and Brest, France, 4/88.

Invited Lecturer, Pourbaix Symposium, Brussels, Belgium, 3/89.

Invited Lecturer, ITER Aqueous Salt Blanket Workshop, Garching, West Germany, 7/89.

Invited Lecturer, Advances in Intermetallic Compounds for High Temperature Applications, Int. Conf. on Adv. Mat., Paris, France, 9/91.

Invited Lecturer, Workshop on High Level Nuclear Waste Disposal, Strasbourg, France, 11/91.

Invited Lecturer, International Conference on Composite Materials, Madrid, Spain, 7/92.

Invited Lecturer, UMIST Anniversary Conference on Corrosion, Manchester, England, 6/92.

Invited Lecturer, Conference on Corrosion-Deformation Interactions, Fontainbleau, France, 9/93.

Invited Lecturer, International Conference on Ceramic Composites, Florence, Italy, 6/94.

Invited Lecturer, European Corrosion Congress, Nice, France, 9/96.

Invited Lecturer, Int. Conf. on Electrochem. Methods in Corrosion, Zurich, Switzerland, 1/97.

Attendee and Speaker, The Electrochem. Soc. Meeting, Paris, France, 9/97.

Attendee and Speaker, The Electrochem. Soc. Meeting, Paris, France, 4/03

Distinguished Lecturer, Novellus Symposium on Electronic Materials, Shanghai Institute of Technology, Shanghai, China, 5/04

Lecturer to International Nuclear Waste Technology Programs, Berlin, Germany, 3/05

XI. Recent Professional and Public Lectures

1997

"The Effect of Ozone on the Corrosion Behavior of Ni-Cr-Mo Alloys" Int. Conf. on Electrochemical Methods in Corrosion: Theory and Applications, Zurich, January (invited).

"The Oxidation Behavior of Reinforced SiC/SiC and SiC/Al_2O_3 Composites in Air and in Water Vapor" Int. Conference on Composites, Am. Ceramic Society, Cocoa Beach, FL, January (invited).

"Corrosion Fatigue Crack Initiation Processes", TMS Annual Meeting, Orlando, FL, February (invited)

"Localized Corrosion of Ni-Cr-Mo Alloys in Ozonated Seawater" NACE Annual Meeting, New Orleans, LA, March

"Localized Corrosion of Stainless Steel Alloys in Ozonated Seawater" NACE Annual Meeting, New Orleans, LA, March

"Electrochemistry of Chemical Mechanical Planarization" INTEL Symposium, Santa Clara, CA, June (invited).

"Electroplating and Electroless Plating of Metals and Alloys for Interconnects in Electronic Applications" INTEL Symposium, Santa Clara, CA, June (invited).

"Electrochemistry of Chemical Mechanical Planarization" Video Symposium, RPI, Troy, NY, July

"Electrochemical Considerations in the CMP of Copper" ECS Fall Meeting, Paris, September.

"CMP of Aluminum for Interconnects" ECS Fall Meeting, Paris, September.

1998

"Electrochemical Considerations for the CMP of Copper Interconnects", MRS meeting, San Francisco, April (invited)

"Electrochemistry of CMP of patterned Copper Interconnects for Electronic Applications, ECS Spring Meeting, May (invited)

"Electrochemical Parameters for the Electrodeposition of Copper for Interconnects", Seminar, Semitool, Kalispell, MT, June (invited)

"Electrochemical Characterization of Copper During Chemical Mechanical Planarization",

ECS Spring Meeting, May, (invited)

"Pulse Reverse Electrodeposition of Copper from an Alkaline Complexing Bath", ECS Fall meeting, November, (invited)

"Electrodeposition for Semiconductor Applications", CAIST Review, Rensselaer, November (invited)

"Electrodeposition of Copper and Copper alloys for Interconnect Applications", Physics Department, SUNY Albany, December (invited)

1999

“Electroplating Bath Development for Microelectronic Systems”, Technic Corporation, Warwick, RI, January

“Novel Electroplating Baths for Microelectronic Applications”, Semitool, Kalispell, MT, April

“Pulse Plating Parameters for Electrochemical deposition of Copper for Microelectronic Applications”, Spring ECS Meeting, Seattle, WA, May

“Development of Alkaline Bath Chemistries for Copper Plating”, Spring ECS Meeting, Seattle, WA, May

“Development of New Bath Chemistries for Copper Plating in Microelectronic Applications”, Semitool, Kalispell, MT, July

“Chemical Mechanical Planarization of Damascene Patterned Wafers” Microcontamination Ceneter Review, RPI, October

“Electrochemical Aspects of CMP of Copper”, Fall ECS Meeting, Honolulu, HI, November
“The Effects of Dissolved Ozone on the Corrosion Behavior of Passive Alloys on Seawater”, Fall ECS Meeting, Honolulu, HI, November

“CMP of Damascened Wafers”, Fall ECS Meeting, Honolulu, HI, November

“Pulse Plating of Copper on Patterned Wafers”, Fall ECS Meeting, Honolulu, HI, November
“Nucleation of Copper on TiN Barrier Materials for Microelectronic Applications”, Fall ECS Meeting, Honolulu, HI, November

“Electrochemical Considerations for Processing of Microelectronic Materials”, Argonne National Laboratories, Argonne, IL, December

2000

"Electrodeposition Studies for USLI Applications", Chemical Engineering Departmental Symposium, Columbia University, January

"Electrochemical Applications of Microelectronic Processing", Distinguished Career Lecture, Hudson Mohawk Chapter of TMS, February

"New Concepts in Slurry Free CMP of Copper", CMC Spring meeting, University of Arizona, April

"Deposition of Copper on TiN barriers for Microelectronic Applications", Spring ECS Meeting, Toronto, May

"Limits of Electrodeposition for Microelectronic Processing", Spring ECS Meeting, Toronto, May

"Direct Copper Electroplating on Nitride Barrier Layers" CAIST Annual Review, Rensselaer, October

"Abrasive Free CMP" CMC Fall Meeting, Rensselaer, October

"CMP of Copper using Model Slurries" Fall ECS Meeting, Phoenix, AZ, October.

2001

"The role of Electrochemistry in Microelectronic Processing" Seminar, Intel, Portland, OR, January (invited)

"Electrodeposition of Copper directly on W_2N" TMS Annual Meeting, New Orleans, LA, February (invited)

"CMP of Copper with Surfactant Additions" TMS Annual Meeting, New Orleans, LA, February (invited)

"Seedless Electrodeposition of Copper on Non-metallic Substrates" Spring ECS Meeting, Washington, DC, March (invited)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Texas Instruments, Houston, TX, April (invited)

"Oxidation Behavior of TiAl Intermetallics", Chrysalis, Richmond, VA, Seminar, April (invited)

"Abrasive-free Planarization of Copper for Interconnects", University of Arizona, Phoenix, AZ, May (invited)

"Direct Electrodeposition of Copper on Nitride Substrates", Fall ECS Meeting, San Francisco, CA, September

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, RPI, Troy, NY, September

"Electrochemical Planarization of Copper on Patterned Wafers" Center for Microcontamination Control Review, Northeastern University, Boston, MA, November

2002

"Electrochemical Considerations in ULSI Fabrication" Departmental Seminar, Rensselaer Polytechnic Institute, Troy, NY, January

"Copper Deposition on Tungsten Nitride Substrates", Spring ECS Meeting, Philadelphia, PA, May

"Abrasive-free Planarization of Electrodeposited ULSI Structures" Center for Microcontamination Control Review, Arizona State University, Tucson, Arizona, November

"Seedless Electrodeposition of Copper on Non-Metallic Substrates" SRC Seminar, University of Texas, Austin, TX, September

"Seedless Electrodeposition of Copper on TiN" Fall ECS Meeting, Salt Lake City, UT, October

"Electrochemical Planarization of Patterned Wafers" Fall ECS Meeting, Salt Lake City, UT, October

2003

"Seedless Electrodeposition of Copper on Nitride Substrates" Spring ECS Meeting, Paris, France, April (invited)

"Electrochemical Aspects of Processing of ULSI Wafers" Texas Instruments, Dallas, TX, May (Invited)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Sematech, Houston, TX, June (invited)

"Abrasive-free Planarization of Copper for Interconnects", University of Arizona, Phoenix, AZ, September (invited)

"Direct Electrodeposition of Copper on Titanium Nitride Substrates", Fall ECS Meeting, Washington, DC, October, (Invited)

"Seedless Deposition of Copper on Nitride Surfaces", Center for Advanced Interconnects Science and Technology Review, RPI, Troy, NY, October

2004

"Seedless Electrodeposition of Copper on Non-metallic Substrates" Spring ECS Meeting, San Antonio, April (invited)

"Electrochemical Aspects of Processing of ULSI Wafers" Novellus Symposium, Shanghai Institute of Technology, Shanghai, China, May (Invited)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Sematech, Houston, TX, June (invited)

"Abrasive-free Planarization of Copper for Interconnects", Northeastern University, Boston, MA, September (invited)

"Direct Electrodeposition of Copper on Titanium Nitride Substrates", Fall ECS Meeting, Honolulu, HI, October, (Invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, RPI, Troy, NY, October

2005

"The US Nuclear Waste Technology Program", Assemblage of Directors of Nuclear Waste Technology Programs, Berlin, Germany, March (invited)

"Seedless Electrodeposition of Copper on Non-metallic Substrates" Spring ECS Meeting, Quebec, May (invited)

"Abrasive-free Planarization of Copper for Interconnects", Spring ECS Meeting, Quebec, May (invited)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Sematech, Houston, TX, June (invited)

"Direct Electrodeposition of Copper on Titanium Nitride Substrates", Fall ECS Meeting, Las Angeles, October, (Invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, SUNYA, October

"The US Nuclear Waste Technology Program", Assemblage of Directors of Nuclear Waste Technology Programs, Berlin, Germany, March (invited)

"Seedless Electrodeposition of Copper on Non-metallic Substrates" Spring ECS Meeting, Quebec, May (invited)

"Abrasive-free Planarization of Copper for Interconnects", Spring ECS Meeting, Quebec, May (invited)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Sematech, Houston, TX, June (invited)

"Direct Electrodeposition of Copper on Titanium Nitride Substrates", Fall ECS Meeting, Las Angeles, October, (Invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, SUNYA, October

"Seedless Electrodeposition of Copper on TaN Substrates" Spring ECS Meeting, San Francisco, May (invited)

"Electrochemical Planarization of Copper for Interconnects", Fall ECS Meeting, Cancun, October (invited – keynote lecture)

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Semitool, Kalispell, MT, November (invited)

"Direct Electrodeposition of Copper on ALD Surfaces", Fall ECS Meeting, Cancun, October, (Invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, SUNYA, October

<u>2006</u>

"Seedless Electrodeposition of Copper on TaN Substrates" Spring ECS Meeting, San Francisco, May (invited)

"Electrochemical Planarization of Copper for Interconnects", Fall ECS Meeting, Cancun, October (invited – keynote lecture)

"Direct Electrodeposition of Copper on ALD Surfaces", Fall ECS Meeting, Cancun, October, (Invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Review, SUNYA, October

"Electrochemical Aspects of CMP and Electrodeposition of Copper" Seminar, Semitool, Kalispell, MT, November (invited)

2007

"Microbiological Corrosion in Oil Pipelines", Annual NACE Int. meeting, Nashville, TN, March (invited)

"Research needs in Corrosion Science and Engineering", NAS/NAE Workshop on National Needs in Corrosion Education, Washington, D.C. March (invited)

"Seedless Deposition of Copper on Non-metallic Materials", Center for Advanced Interconnects Science and Technology Workshop, SUNYA, April (invited)

"Educational Opportunities in Nano-Engineering", National Institute for Nano-Engineering (NINE), Albuquerque, NM, June (invited)

2008

"Corrosion Considerations for Nuclear waste Disposal at Yucca Mountain", Annual NACE Int. meeting, New Orleans, LA, March, (invited)

"The Scientific and Technical Aspects of Nuclear Waste Disposal in the US", Scientific Program Review of Sweden's nuclear waste program, Stockholm, Sweden, April (invited)

"Electrochemical Aspects of Abrasionless Planararization of Copper for ULSI Applications", Spring ECS meeting, Phoenix, AZ, May (invited)

"Seedless Electrodeposition of Copper on Non-metallic Substrates for Feature Filling of ULSI Structures" Fall ECS meeting, Honolulu, HI, November, (invited)

"Corrosion Issues Related to Disposal of High Level Nuclear Waste in the Yucca Mountain Repository", The Scientific Basis for Nuclear Waste Management XIII, Fall MRS meeting Boston, MA, November (invited)

2009

"Nuclear Waste Disposal at Yucca Mountain" MSE Departmental Seminar, RPI, April (invited)

"Corrosion Aspects of the US Nuclear Waste Disposal Program" Joint meeting on the US/France nuclear waste disposal programs, Paris, May (invited)

Microbiological Corrosion in Domestic Water Systems" Seminar, University of Arizona, Tucson, Az, June (invited)

"Electrochemical Considerations in Processing Metal Interconnects for ULSI Applications" Fall ECS Meeting, Vienna, Austria October (invited keynote)

"Corrosion Aspects of the US Nuclear Waste Disposal Program" Joint meeting on the US/UK nuclear waste disposal programs, London, UK, November (invited)

"Corrosion of Copper Canisters in the Swedish Nuclear Waste Repository Horizon" Stockholm, Sweden, November (invited)

"Electrochemical Considerations in Processing Metal Interconnects for ULSI Applications" Seminar, University of Toronto, December (invited)

Patents Granted

"Intumescent Materials", Patent Number 6,238,584 B1, dtd. May 29, 2001, (with K. Turpin, M. Shumate, R. Hamilton, W. Johnson, S. Volenc, and E. Bright)

"Copper Alloy Electroplating Bath for Microelectronic Applications", Patent Number 6,319,387, dtd. November 20, 2001, (with A. Krishnamoorthy, and S. Murarka)

"Metallization Structures for Microelectronic Applications and Process for Forming the Structures" Patent Number 6,368,966, dtd. April 9, 2002

"Electrochemical Planarization of Metal Feature Surfaces" Patent Number 6848975, dtd, February 1, 2005

Publications

1. "The Effect of Environment and Potential on Corrosion Fatigue of Low Carbon Steels", Ph.D. Thesis, Massachusetts Institute of Technology (1968).

2. "Effect of Dissolved Oxygen and NaCl on Corrosion Fatigue of 0.18% Carbon Steel", Trans. ASM, 61, 449 (1968) (with H.H. Uhlig).

3. "The Critical Reaction Rate for Corrosion Fatigue of 0.18% Carbon Steel and the Effect of pH", Trans. ASM, 62, 839 (1969) (with H.H. Uhlig).

4. "Alleged Stress-Corrosion Cracking of Pure Cu", Corrosion Science, 9, 557 (1969) (with H.H. Uhlig).

5. "The Role of Free Surfaces in the Deformation of Metal Single Crystals", Scripta Met., 3 , 513 (1969).

6. "The Preparation of Thin Foils of Metal Surfaces for Transmission Electron Microscopy", Metallography, 3, 71 (1970) (with L.P. LeMaire).

7. "The Effect of High Vacuum on the Creep Properties of a High Strength Nickel Alloy Single Crystal", Scripta Met., 4, 633 (1970).

8. "A Fractographic Study of Stage I Fatigue Cracking in a Nickel-Base Superalloy Single Crystal", Met. Trans., 1, 3107 (1970) (with M. Gell and J.W. Piteo).

9. "The Effect of Environment on the Mechanism of Stage I Fatigue Fracture", Met. Trans., 2, 1325 (1971) (with M. Gell).

10. "The Effect of Low Energy He^+ Ion Injection on the Surface Structure of Ordered Ni-Base Alloys", Phil. Mag., 24, 1411 (1971) (with R. Krutenat).

11. "Mechanisms of Fatigue Crack Nucleation", Proceedings Int. Conf. on Corrosion Fatigue, Storrs, CT, (1971), p.88 (with C. Laird).

12. "A Review of Aqueous Corrosion Fatigue", Proceedings Int. Conf. on Corrosion Fatigue, Storrs, CT, (1971), p.12.

13. "The Effects of Oxygen on Fatigue Fracture of Engineering Alloys", Proceedings Int. Conf. on Corrosion Fatigue, Storrs, CT, (1971), p.366 (with M. Gell).

14. "The Effect of Environment on the Elevated Temperature Fatigue Behavior of a Nickel-Base Superalloy", Met. Trans., 3, 1899 (1972)(with M. Gell).

15. "Corrosion Fatigue Crack Initiation in Cu and Cu 7.8% Al", Third Int. Conf. on Fracture, Munich, 1973, p.234 (with P. Andresen and H. Masuda).

16. "Corrosion Fatigue of Metals and Alloys", Reviews of Coatings and Corrosion , 1, 187 (1974).

17. "The Effect of Mean Stress and Environment on Corrosion Fatigue Behavior of 7075-T6 Aluminum", Met. Trans., 5, 1087 (1974) (with) L.V. Corsetti).

18. "Microstructural Effects on the Fatigue Behavior of Metals and Alloys", Critical Reviews in Solid State Science, 4, 615 (1974) (with N. Stoloff).

19. "The Effect of Surface Dissolution on Fatigue Crack Nucleation in Polycrystalline Copper", Met. Trans., 6A, (1975) (with H. Masuda).

20. "Stress Corrosion Cracking Behavior of Duplex Stainless Steel Weldments in Boiling $MgCl_2$", Corrosion , 31 , 376 (1975) (with W. Savage and D. Sherman).

21. "Pre-Crack Fatigue Deformation in an Al-5.0Zn-2.5Mg Alloy", Acta Met., 24, 241 (1976) (with P. Swann).

22. "High Cycle Fatigue of a CoCrNi-TaC Aligned Eutectic", Proc. 2nd Int. Conf. on In-Situ Composites, Bolton Landing, p.587 (1976) (with C. Koburger and N. Stoloff).

23. "Fractographic Features in Eutectic Composites", ASTM STP 600, p.154 (1976),

Fractography-Microscopic Cracking Processes (with N. Stoloff).

24. "Hydrogen Assisted Fatigue Cracking of High Strength Aluminum Alloys", in Effect of Hydrogen on Behavior of Materials, 2nd Int. Conf. for Hydrogen and Metals, p.2118 (1976) (with E. Smith and R. Jacko).

25. "The Influence of Growth Rate and Temperature on High Cycle Fatigue of Al-Al_3Ni", Met. Trans., 7A, 703 (1976) (with G. Maurer and N. Stoloff).

26. "Low cycle Fatigue Behavior of a Commercial Solid Solution Nickel Alloy", 2nd Int. Conf. on Mechanical Behavior of Materials, Boston, (1976) (with R. Bosch).

27. "The Role of Surface Removal in Cyclic Deformation and Crack Initiation in Single Crystal and Polycrystalline Copper", Proc. 4th Int. Conf. on Strength of Metals and Alloys, Nancy, France, p.916 (1976) (with H. Hahn).

28. "Fatigue Crack Initiation and Propagation in an Aligned Al-Al_3Ni Eutectic", Proc. 4th Int. Conf. on Strength of Metals and Alloys, Nancy, France, p.563 (1976) (with N. Stoloff and G. Maurer).

29. "Alloy Design for Aqueous and Stress Corrosion Resistance", in Alloy Design, Ed. G.S. Ansell and J.K. Tien (1976), Academic Press, NY, p.251.

30. "Hydrogen Embrittlement of a Cyclically Deformed High Strength Al Alloy", Met. Trans., 8A, 1821-1827 (1977) (with R.J. Jacko).

31. "Slow Strain Rate Stress Corrosion Cracking of Type 304 Stainless Steels", Corrosion, 33, 67 (1977) (with F. Stalder).

32. "The Role of Surface-Environment Interactions on Cyclic Deformation", NATO Adv. Studies Inst., in "Surface Effects in Crystal Plasticity", Ed. R.M. Latanision and J.T. Fourie, Nordhoff, Leyden (1977), p.469 (with P. Andresen and H. Hahn).

33. "The Fatigue Behavior of High Strength Aluminum Alloys under Cathodic Charging Conditions", Paper 301, Proc. 2nd Int. Congress on Hydrogen in Metals, Paris, France (1977) (with E.F. Smith, III and R.J. Jacko).

34. "Fatigue Crack Propagation in a Cobalt Base Aligned Eutectic", Met. Trans., 8A, 1621-1627 (1977) (with C.M. Austin and N.S. Stoloff).

35. "The Effects of Microstructure on the Fatigue of Co Ni-TaC Eutectic Alloys", Acta Met., 26, 81 (1978) (with C.W. Koburger and N.S. Stoloff).

36. "Mechanism of Corrosion Fatigue Crack Initiation and Propagation", in Mechanisms of Environment Sensitive Cracking of Materials, Ed. P.R. Swann, F.P. Ford and A.R.C. Westwood, p.305 (1977).

37. "Interface Temperature Measurements in the Fretting of a Medium Carbon Steel", Wear, 47 p.387-396 (1978) (with E.S. Sproles, Jr.).

38. "Technical Note: Stress Corrosion Cracking in Duplex Stainless Steel Weldments", Welding Journal, 57(6), (June 1978), Res. Suppl., p.175-177s (with W.A. Baeslack, III and W.F. Savage).

39. "Corrosion Fatigue Behavior of a Duplex Aluminum Bronze Alloys", Corrosion, 34, 119-124 (1978) (with P. Collins).

40. "The Results of High Resolution Slip Measurements in a Fretting Experiment", Wear, 52, 1, p.95-104 (1979) (with E.S. Sproles, Jr.).

41. "The Effect of Surface Dissolution on Fatigue Deformation and Crack Nucleation in Copper and Copper 8% Aluminum Single Crystals", Acta Met., 26, 279-287 (1978) (with H. Hahn).

42. "The Effect of Ferrite Content on Stress Corrosion Cracking in Duplex Stainless Steel Weld Metals at Room Temperature", Corrosion, 35, p.45-54 (1979) (with W.A. Baeslack, III and W.F. Savage).

43. "A Mechanistic Understanding of the Effects of Environment on Fatigue Crack Initiation and Propagation", in Environment Sensitive Fracture of Engineering Materials, Ed. Z. Foroulis, AIME, NY, (1979), p.521.

44. "The Mechanisms of Material Removal in Fretting", Wear, 49, p.339-352 (1978) (with E.S. Sproles, Jr.).

45. "The Effect of Test Method and Surface Condition on Pitting Potential of Single and Duplex Phase 304L Stainless Steel", Corrosion 35, p.151-158 (1979) (with P. Manning and W.F. Savage).

46. "STEM Microanalysis of Duplex Stainless Steel Weld Metal", Scanning Electron Microscopy, 1, p.213-220 (1978) (with C.E. Lyman, P.E. Manning and E. Hall).

47. "Fatigue Mechanisms in Nickel and Cobalt-Base Eutectic Composites", in Fatigue Mechanisms, ASTM 675, Ed. J.T. Fong, ASTM Philadelphia, p.788 (1979).

48. "Effect of Nitrogen on the Microstructure and Stress Corrosion Cracking of Stainless Steel Weld Metals", Welding Journal, 53(3), Res. Supple., p.835-905 (1979) (with W.A. Baeslack, III and W.F. Savage).

49. "Environmental Effects I: General Fatigue Resistance and Crack Nucleation in Metals and Alloys", in Fatigue and Microstructure, Am. Soc. for Metals, 1979, p.335.

50. "The Effect of Strain Rate on Stress Corrosion Cracking in Duplex Type 304 Stainless Steel Weld Metal", Met. Trans., 10A, p.1429-1435 (1979) (with W.A. Baeslack, III and W.F. Savage).

51. "The Role of Cyclic Wear (Fretting) on Fatigue Crack Nucleation in Steels", Proc. 5th Int. Conf. on Strength of Metals and Alloys, Ed. P. Haasen, V. Gerold and G. Kostorz, p.213 (1979).

52. "Creep Fatigue Interactions in Fibrous Eutectic Alloys", Proc. 5^{th} Int. Conf. on Strength of Metals and Alloys, Ed. P. Haasen, V. Gerold and G. Kostorz, p.1201 (1979) (with N.S. Stoloff and W.A. Johnson).

53. "The Effect of Heat Treatment on the Fatigue and Corrosion Fatigue Behavior of a CuNiCr Alloy", Met. Trans., 10A, p.1453-1460 (1979) (with H. Hahn).

54. "Effect of Chloride Ion Concentration and Applied Potential on the SCC Behavior of Type 304 Stainless Steel in Deaerated High Temperature Water", Corrosion 36, 409, (1980) (with P. Andresen).

55. "Creep-Fatigue-Environment Interactions in Eutectic Composites" in Creep-Fatigue-Environment Interaction, Ed. R. Pelloux and N.S. Stoloff, AIME, NY, p.178, (1980) (with N.S. Stoloff).

56. "Cyclic Wear Behavior (Fretting) of a tempered Martensite Steel", Met. Trans., 11A, 1581, (1980) (with D.J. Gaul).

57. "The Effect of Fretting and Environment on Fatigue Crack Initiation and Early Propagation in a Quenched and Tempered 4130 Steel", Met. Trans., 11A, 1555, (1980) (with D.J. Gaul)

58. "A New Interpretation of the Mechanism of Fretting and Fretting Corrosion Damage", Proc. Int. Conf. on Fund. of Tribology, Ed. N.P. Suh and N. Saka, MIT Press, Cambridge, p.585, (1980) (with E.S. Sproles, Jr. and D.J. Gaul).

59. "The Effect of Temperature (25˚-289˚C) on Pit Initiation in Single Phase and Duplex 304L Stainless Steels in 100 ppm Cl^- Solution", Corrosion Science, 20, 587 (1980) (with P.E. Manning).

60. "A STEM Examination of the Localized Corrosion Behavior of a Duplex Stainless Steel", Corrosion, 36, 246 (1980) (with P.E. Manning and C.E. Lyman).

61. "Technical Note: "The Effect of Retained Ferrite on Localized Corrosion of Stainless Steel", Welding J. Research Supp., 59(9) 2605, (1980) (with P.E. Manning and W.F. Savage).

62. "The Role of Sulfide Inclusion Dissolution Kinetics in Pit Initiation of Several 300 Series Stainless Steels, Corrosion, 36, 313 (1980) (with P.E. Manning and W.F. Savage).

63. "Creep-Fatigue Interaction in a Cobalt-Base Aligned Eutectic", Met. Trans., 11A, 1107, (1980) (with C.W. Koburger and N.S. Stoloff).

64. "Environmental Considerations in Wear Processes" in Fundamentals of Friction and Wear, ASM Metals Park, Ed. D. Rigney, p.291 (1981).

65. "The Role of Hydrogen in Environmental Fatigue of High Strength Aluminum" in Hydrogen Effects of Metals, Ed. I.M. Bernstein and A.W. Thompson, AIME, (1981) p.477.

66. "Microstructure and Mechanical Properties of a Ni-Al-Mo Eutectic Composite", Acta. Met., 29, 1467, (1981) (with T. Ishii and N.S. Stoloff).

67. "Environmental Effects on Fatigue Crack Initiation and Early Propagation" in Environmental Degradation of Engineering Materials in Aggressive Environments, Ed. M. Louthan, R. McNitt and R. Sisson, Jr., VPI, Blackburgh, (1981) p.131.

68. "Dissolution Enhanced Surface Plasticity Under Cyclic Loading Conditions", in Corrosion and Corrosion Protection, Ed. R. Frankenthal, F. Mansfeld, The Electrochemical Society, NJ, (1981) p.144.

69. D.J. Duquette, N.S. Stoloff and C. Verpoort, written discussion on Shot Peening, International Conference on Shot Peening, Paris, (1981).

70. "Effect of Surface Residual Stress on the Fretting Fatigue of a 4130 Steel", in Residual Stress Effects in Fatigue, STP 776, Ed. J.F. Troop and H.S. Reemsnyder, ASTM, Philadelphia, p.195, (1981) (with S. Kudva).

71. "The role of Interfaces in the Hydrogen Embrittlement of Nickel", S. Ashok, D.J. Duquette, N.S. Stoloff and C. Verpoort, Scripta Metallurgica, 15, 1329, (1981).

72. "The Low Cycle Fatigue Behavior of Three Advanced Nickel-Base Eutectic Composites", Proc. Conf. on In-Situ Composites IV, Boston, MA, p.59, Eds. F.D. Lemkey, H.E. Cline & M. McLean, (1981) (with T. Ishii and N.S. Stoloff).

73. "Mechanisms of Corrosion Fatigue of Aluminum Alloys", AGARD Conference Proceedings, No. 316, NATO, p.1, (1981).

74. "Fretting Corrosion and Fretting Fatigue", in Surface Treatments for Improved Performance and Properties, Sagamore Army Materials Research Conference Proceedings, Vol. 26, p.173, (1982), Syracuse Univ. Press, Eds. J. Burke and V. Weiss.

75. "Pitting Corrosion of Stainless Steel Weldments", American Society for Metals Conference on Trends in Welding Research in the United States, p.361, (1982), Ed. S. David, (with W. Cieslak and W.F. Savage).

76. "Pitting Behavior of Duplex 308L Stainless Steel in Methanol/Water/ HCL Solution", Corrosion, 38, 63, (1982) (with P. Hronsky).

77. "Microstructure and Fatigue Behavior of Nickel-Base Eutectic Composites", Proceedings, 6th International Conference on the Strength of Metals and Alloys, Melbourne, Australia, (1982), Vol. 1, p.141-146 (with K. Dannemann, T. Ishii and N.S. Stoloff).

78. "The Effects of Frequency and Hold Times on Fatigue Crack Propagation Rates in a Nickel Base Superalloy", Proceedings, 6th International Conference on the Strength of Metals and Alloys, Melbourne, Australia, (1982), Vol. 2, p.879-885 (with S.V. Golwalkar and N.S. Stoloff).

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82. "Stress Corrosion Cracking of Annealed and Sensitized Type 304 Stainless Steel, in Deaerated Chloride/Sulfate Solutions", Corrosion, 39, 425 (1983) (with A. Poznansky).

83. "Potentiodynamic Polarization Studies of an Al-Mg-Li Alloy", Proceedings, Second International Aluminum-Lithium Conference, Ed. T. Sanders and E. Starke, TMS-AIME, p.581, (1984) (with R.E. Ricker).

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85. "Catalytic Activity of Iron, Nickel and Nickel-Phosphorus in Electroless Nickel Plating", J. Electrochem. Soc., 131, p.34-40, (1984) (with J. Flis).

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103. "Electrochemical Techniques for Evaluation of Microbiologically Influenced Corrosion Processes" in Argentine USA Workshop on Bio- deterioration, Ed. S. Dexter and H. Videla, p.15, Aquatec Quimica, Sao Paulo (1986).

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105. "Microbiologically Induced Cathodic Depolarization", Corrosion 87, Paper Number 370, San Francisco, CA, (1987) (with B. Little and P. Wagner).

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