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Date of Birth: January 10, 1939, Sichuan, China  
Citizen: USA

### Professional Experience

2014 Distinguished Visiting Professor, University of Miami, Departments of Biomedical Engineering and Mechanical Engineering  
2012-13 Distinguished Visiting Professor, University of California, San Diego, Department of Bioengineering  
2011 Advisor for Biomedical Engineering, Hong Kong University of Science and Technology  
2011 Distinguished Visiting Professor, University of Hong Kong, Biomedical Engineering Department  
2000-11 Founding Chairman, Department of Biomedical Engineering, Fu Foundation School of Engineering and Applied Science, Columbia University, since 2000  
Present Stanley Dicker Professor of Biomedical Engineering and Orthopaedic Bioengineering, Fu Foundation School of Engineering and Applied Science, Columbia University, since 1998  
2003-12 Director, The Liu Ping Laboratory for Functional Tissue Engineering Research, Department of Biomedical Engineering, Fu Foundation School of Engineering and Applied Science, Columbia University, since 2003  
1995-00 Director, Center for Biomedical Engineering, School of Engineering and Applied Science, and College of Physicians and Surgeons, Columbia University  
1986-02 Director, New York Orthopaedic Hospital Research Laboratory, Columbia-Presbyterian Medical Center  
1986-98 Professor of Mechanical Engineering, School of Engineering and Applied Science, Columbia University  
1986-02 Anne Y. Stein Professor of Orthopaedic Bioengineering, College of Physicians and Surgeons, Columbia University  
1982-86 John A Clark and Edward T Crossan Professor of Engineering, Rensselaer Polytechnic Institute  
1978-86 Visiting Professor in Orthopaedics, Harvard Medical School  
1977-86 Adjunct Professor of Surgery, Albany Medical College  
1976-82 Professor of Mechanics and Biomedical Engineering, Rensselaer Polytechnic Institute  
1976-77 Visiting Professor, Childrens Hospital, Harvard Medical School  
1972-77 Adjunct Associate Professor of Orthopaedics, Albany Medical College  
1969-76 Associate Professor of Mechanics, Rensselaer Polytechnic Institute  
1968-69 Member of Technical Staff, Division of Engineering, Research and Mechanics Bell Telephone Laboratories, Incorporated  
1966-67 Assistant Professor of Mechanics, Rensselaer Polytechnic Institute

### Education

Postdoc Fellow (Math) Courant Institute Mathematical Sciences, NYU, 1967-68  
PhD (Mechanics) Rensselaer Polytechnic Institute, 1966  
BS (Aeronautical Engng) Rensselaer Polytechnic Institute, 1962

### Academies

The World Academy of Sciences (TWAS), 2008, 2012  
Academia Sinica, Taiwan, 2004  
U.S. Institute of Medicine of the National Academy of Sciences, 1998  
U.S. National Academy of Engineering, 1991

## **Honors and Awards**

ASME Medal, IMECE, Montreal, Canada, November 17, 2014  
Skalak Memorial Lecture, University of California, San Diego, March 8, 2013  
Keynote Lecture, International Chinese Musculoskeletal Research Society, San Antonio, January 26, 2013  
Einstein Lecture, 2<sup>nd</sup> International Symposium on Bioelectronics and Bioinformatics, Chinese Academy of Sciences-SIBET, Suzhou, China, November 4, 2011  
Top 10 Mechanical Engineering Graduate from RPI for the Centennial Celebration of the Mechanical Engineering Department, April, 2008  
OARSI 2008 Outstanding Basic Science Award, OARSI World Congress, Rome, Italy, September 18, 2008  
Biot Heritage Lecture, Columbia University, New York, November 16, 2006  
Davies Medal for Outstanding Alumni Achievements, Rensselaer Polytechnic Institute, April 6, 2006  
Namesake for Lecture Series: The Annual Van C. Mow Lecture Series in Applied Mechanics, Rensselaer Polytechnic Institute, 2006-  
Honorary Member, International Chinese Hard Tissue Society, 2005  
Fellow, Biomedical Engineering Society, 2005  
Namesake for ASME Medal: The Van C. Mow Medal for Excellence in Bioengineering, 2005-  
Honorary Professor, Beijing University of Aeronautics and Astronautics, 2004  
Honorary Professor, Zhejiang University, Hongzhou, China, 2004  
Academic Advisor to Crown Princess Maha Chakri Sirindhorn for the Development of Biomedical Engineering in Thailand, 2003-07  
Honorary Professor, Hong Kong Polytechnic University, 2003  
Robert H. Thurston Lecture, ASME, November 18, 1998  
Stichting World Biomechanics Foundation "Low-Lands" Biomechanics Award, the Netherlands, 1996  
HE Cabaud Award, American Orthopaedic Society for Sports Medicine, 1996  
CS Neer Award for shoulder research, American Shoulder and Elbow Surgeons, 1996  
Founder and Inaugural Chair, Department of Biomedical Engineering, Columbia University, 1995-11  
College of Fellows, American Institute of Medical and Biological Engineering, Founding Member, Elected 1992  
Giovani Borelli Award, American Society of Biomechanics, 1991  
Richard Skalak Best Journal Paper Award, Bioengineering Division, ASME, 1992  
Bristol-Myers/Zimmer Distinguished Award for Excellence in Orthopaedic Research, 1990  
Fogarty Senior International Fellowship, 1987  
HR Lissner Award for Contributions to Bioengineering, ASME, 1987  
Honorary Professor, Shanghai Jiao Tong University, 1987  
Japanese Society for the Promotion of Science Fellowship, 1986  
Honorary Professor, Shanghai University, 1983  
John A. Clark and Edward T. Crossan Professor of Engineering, 1982-1986  
Melville Medal, Highest ASME honor for original paper, 1982  
President, Orthopaedic Research Society, 1982-1983  
William H. Wiley, Distinguished Faculty Award, RPI, 1981  
Honorary Professor, Sichuan University, 1981  
Kappa Delta Award, Best Research in Orthopaedics, AAOS, 1980  
Fellow, American Society of Mechanical Engineers, 1979  
NATO Senior Postdoctoral Fellow, 1978  
Who's Who in America  
Who's Who in the Republic of China  
Who's Who in Science and Engineering  
American Men and Women in Science  
Who's Who in Engineering  
Who's Who in Technology Today  
Who's Who in the World  
Who's Who in Medicine

## **Major and Honorary Invited Lectures**

President's Keynote Lecturer, International Chinese Hard Tissue Society (ICHTS), January January 26, 2013  
Keynote Lecturer, Beijing University of Aeronautics and Astronautics-Columbia University Bilateral Symposium:  
Introduction to the Department of Biomedical Engineering at Columbia University, November 12, 2012

Plenary Lecturer, 7<sup>th</sup> International Biofluid Mechanics Symposium, Ein Bokek, Dead Sea, Israel, March 29, 2012

Distinguished Overseas Chinese Scholar's Lecture, Shanghai Jiao Tung University, November 16, 2011

Keynote Lecturer, 3<sup>rd</sup> Suzhou International Clinic Forum, Soochow University, November 5, 2011

Plenary Speaker--Rigorous Mechanics and Elegant Mathematics on the Formulation of Constitutive Laws for Complex Materials: An Example from Biomechanics. A Tribute to a Colleague and Friend: Prof YH Pao, Proc Int Symp Eng Mech, National Taiwan University, May 20, 2010

Keynote Speaker--First National Academy of Engineering-Institute of Medicine Combined Regional Meeting at the University of Miami, On the use of Engineering Models and Innovations in Health Care, March 25, 2010

Distinguished Lecturer, School of Engineering, University of Miami, March 24, 2010

William Mong Distinguished Lecturer in Engineering, Hong Kong University, November 23, 2009

Opening Ceremony Lecture, OARSI Congress, Rome, Italy, September 18, 2008

Plenary Keynote Lecturer: Cartilage and Osteoarthritis: Biomechanics and Ultrasound, IEEE Ultrasonics Symposium, New York, October 29, 2007

Honorary Lecture, Functional Tissue Engineering, Shanghai Jiao Tung University, October 23, 2007

Colloquium Lecture, On the State of the Department of Biomedical Engineering at Columbia University, Beijing University of Aeronautics and Astronautics, October 10, 2007

Honorary Lecture, Workshop on Tissue Biomechanics, Tsinghua University, October 9, 2007

Colloquium Lecture, On the Establishment of a Biomedical Engineering Department, Hong Kong University, October 5, 2007

Faculty of Engineering Distinguished Lecturer, Hong Kong University, October 5, 2007

Distinguished Lecturer in Biomechanical Engineering, Molecular and Cellular Biomechanics of Articular Cartilage, Stanford University, June 4-5, 2007

Hunter Distinguished Scientist Lecture, Molecular and Cellular Basis for Cartilage Functional Tissue Engineering—Role of Biomechanics, Biomedical Engineering Department, Clemson University, April 5, 2007

Distinguished Lecturer, Biomedical Engineering Department, University of Virginia, November 3, 2006

Keynote Lecturer: Functional Tissue Engineering – The Articular Cartilage Paradigm, Annual IEEE EMB Conference, New York, NY, August 31, 2006

Keynote Lecturer: Structure and Function of Normal and OA Articular Cartilage, 53<sup>rd</sup> Annual Meeting of American College of Sports Medicine, Denver, CO, June 2, 2006

Clarence Davies Medal Lecture, From Immigrant to Bioengineer: Tales from Two Cultures—China to United States and Aeronautical Engineering to Biomedical Engineering, Rensselaer Polytechnic Institute, April 7, 2006

Gurley Lecture in Mechanics: Constitutive Modeling of Biological Tissues as a Soft, Charged, Hydrated, Fiber-Reinforced Material -- Implications for Tissue Engineering, Rensselaer Polytechnic Institute, April 7, 2006

Plenary Honorary Lecturer: Biomedical Engineering for the Year 2020: What Do We See? A New Discipline for the Twenty First Century, National Science and Technology Development Agency, Symposium on Technology Transfer, Bangkok, Thailand, December 16, 2005

Keynote Lecturer: The Origin of Residual Stress and Curling Behavior of Biological Tissues: Physiological and Medical Implications. First U.S. - Thailand Biomedical Engineering Symposium, Bangkok, Thailand, December 14, 2005

Honorary Lecturer: Biomedical Engineering for the Year 2020: What Do We See? A New Discipline for the Twenty First Century, First U.S. - Thailand Biomedical Engineering Symposium, Bangkok, Thailand, December 12, 2005

Plenary Lecturer: The Origin of Residual Stress and Curling Behavior of Biological Tissues: Physiological and Medical Implications.

30<sup>th</sup> International Conference on Computational and Experimental Engineering and Sciences, IIT Chennai, India, December 1, 2005

Keynote Lecturer: Animal Joint Lubrication: Nature's "Fail-Safe" Mechanisms and What Happens when it Fails, 3<sup>rd</sup> World Congress on Tribology, Washington DC, September 14 & 15, 2005

Plenary Honorary Lecture, How to Succeed in America as a Chinese Researcher, ICHTS, February 20, 2005, Washington DC

Keynote Lecturer, U.S. National Science Foundation Sino-American Multi-Sited Biomedical Engineering Symposium, "Influence of Tension-Compression Nonlinearity on the Mechano-Electrochemical Environment of Chondrocytes in Cartilage Explants under Unconfined Compression", Chinese Academy of Sciences, Beijing, China, July 15, 2004

Keynote Lecturer, U.S. National Science Foundation Sino-American Multi-Sited Biomedical Engineering Symposium, "Indentation Determined Mechano-electrochemical properties and fixed charge density of articular cartilage", Shanghai Jiao Tung University, July 7, 2004

Zhu Kezhen Memorial Lecture, "Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis", Zhejiang University, China, July 5, 2004

Invited Lecture, National Academy of Engineering, National Meeting, Irvine, California, February 12, 2004

Army Research Office Conference on Mechanics and Chemistry of Biosystems, Irvine California, February 10, 2004

Plenary Lecture, Biomechanics and Disease Mechanism, World Congress on OsteoArthritis, Berlin, Germany, October 12, 2003

Keynote Lecture, 2<sup>nd</sup> National Science Education Seminar, for the Commoration of Her Royal Highness, Crowned Princess Sirindhorn 48<sup>th</sup> Birthday and the 60<sup>th</sup> Anniversary of Kasetsart University, September 5, 2003, Thailand

Keynote Lecturer, Life Sciences Consortium's Colloquium Series, Functional Tissue Engineering, Pennsylvania State University, March 4, 2003

Keynote Lecturer: Role of Biomechanics on Functional Tissue Engineering, First Congress of Chinese Biomechanics, Taipei, December 11, 2002

Kroc Foundation Distinguished Lecturer on Osteoarthritis and Tissue Engineering, University of Miami, November 7&8, 2002

Visiting Professorship, Univesity of Pittsburgh, June 3, 2002

Keynote Lecture, Croucher Advanced Studies Institute, Hong Kong, April 13, 2000

Southwest Mechanics Lecture Series, March 26-31, 2000

AC Suhren Jr. Lecture, Tulane University, March 30, 2000

Sprint Distinguished Lecturer, Steadman-Hawkins Sports Medicine Foundation, Vail, Colorado, March 2 & 6, 2000

Keynote Lecture, YC Fung 80th Birthday Symposium, ASME Bioengineering Conference, June 16, 1999

Plenary Lecture, International Society of Magnetic Resonance in Medicine, Philadelphia, PA, June 19, 1998.

Lord Kelvin Lecture, University of Texas, Austin, April 9, 1998

Keynote Lecture, JSME Centennial Grand Congress, Tokyo, Japan, July 20, 1997

Caterpillar Distinguished Lecturer, University of Iowa, May 7, 1997

Stichting World Biomechanics Award Lecture, Amsterdam, The Netherlands, November 11, 1996

Paul M. Chung Distinguished Lecture Series, University of Illinois, Chicago, October 16, 1996

Plenary Lecture, Mechanics & Materials Summer Conference, ASME, June 18, 1996

Ray and Robert Kroc Foundation Lectureship on Arthritis, University of Miami, April 24, 1996

Plenary Lecture, First Asian Shoulder Society Meeting, Taipei, April 25, 1994

Keynote Lecture, 20th Symposium of European Society for Osteoarthrology, Bari, Italy, October 20, 1994

Keynote Lecture, 2nd World Congress on Biomechanics, Amsterdam, The Netherlands, July 12, 1994

Presidential Guest Lecture, 8th Japanese Orthopaedic Research Society Meeting, Matsumoto, Japan, October 24, 1993

Keynote Lecture, The Whitaker Foundation, Salt Lake City, July 25, 1993

Keynote Lecture, 7th International Conference on Biomedical Engineering, Singapore, December, 1992

Presidential Guest Lecture, Arthroscopy Association of Republic of China, Taiwan, April 17, 1992

Presidential Guest Lecture, European Society of Biomechanics, Rome, June 12, 1992

Keynote Lecture, Third USA-China-Japan Conference on Biomechanics, Georgia Institute of Technology, August 21, 1991

Borelli Lecture, American Society of Biomechanics, October 14, 1991

Keynote Lecture, Swiss Connective Tissue Research Society, Basal, Switzerland, September 16, 1990

Kroc Foundation Lectureship on Arthritis, University of Miami, April 21, 1990

Alza Distinguish Lectureship, Biomedical Engineering Society, October 18, 1987

Keynote Lecture, XVth Symposium of European Society of Osteoarthrology, Finland, June 20, 1986

Keynote Lecture, European Society of Biomechanics, Nijmegen, January 22, 1982

Keynote Lecture, American Society of Biomechanics, Seattle, October 14, 1982

Keynote Lecture, British Connective Tissue Society, Southampton, England, September 27, 1982

Keynote Lecture, First National Meeting on Biomechanics, Shanghai, People's Republic of China, August 12, 1981

Keynote Lecture, 1979 Biomechanics Symposium, ASME, June 21, 1979

### Editorships

2008-11	Member, Editorial Board, Annual Review of Biomedical Engineering
2007-12	Chair, Editorial Advisory Board, Cellular and Molecular Bioengineering, Springer Publishers
2005-	Editorial Advisory Board, J Biomechanics
2004-06	Editorial Board, Mechanics and Chemistry of Biosystems
2001-07	Co-Editor/Associate Editor, Osteoarthritis and Cartilage, W.B. Saunders
1999	Special Volume of Osteoarthritis and Cartilage, edited by VC Mow and SLY Woo
1996-	Editorial Board, Journal of Musculoskeletal and Orthopaedic Research
1996-00	Editorial Board, Osteoarthritis and Cartilage, W.B. Saunders
1994-00	Advisory Editorial Board, Spine
1993-04	Board of Advisory Editors, Clinical Orthopaedics and Related Research
1993	Special Volume of Journal of Biomechanical Engineering for the 20th Anniversary ASME Biomechanics Symposium, edited by VC Mow, SLY Woo and RM Nerem

- 1986- Consulting Editor, Springer-Verlag Series in Mechanical Engineering
- 1985-92 Honorary Editor, Chinese Journal of Biomechanics, Shanghai
- 1984-88 Chairman, Editorial Advisory Board, Journal of Orthopaedic Research
- 1982 Co-Founder, Journal of Orthopaedic Research
- 1981-05 Member, Editorial Advisory Board, Journal of Biomechanics
- 1981-02 Member, Board of Associate Editors, Journal of Orthopaedic Research
- 1980 Editor, 1980 Advances in Bioengineering, ASME
- 1979-86 Associate Editor, Journal of Biomechanical Engineering, Trans ASME
- 1977-81 Member, Board of Consulting Editors, Journal of Bone and Joint Surgery

## Grants

- 2002-06 Principal Investigator, Whitaker Foundation Biomedical Engineering Special Award: Leadership in Biomedical Engineering Through Cellular and Tissue Engineering, Biomedical Imaging and Biomchanics
- 2003-05 Principal Investigator, National Science Foundation, U.S. - China Multi-Institutional Symposium on Biomedical Engineering
- 1999-03 Principal Investigator, Whitaker Foundation Biomedical Engineering Development Award: Bridging Engineering, Medicine and Biology with an Emphasis on Biomedical Imaging
- 1996-99 Principal Investigator, National Institutes of Health, Biomechanical Factors in OA of the Glenohumeral Joint.
- 1996-98 Principal Investigator, Whitaker Special Opportunity Award, Tissue Biomechanics and Biochemistry: A Theme for the Development of a Biomedical Engineering Department at Columbia University
- 1994-02 Principal Investigator, National Institutes of Health, Etiology of Osteoarthritis of the Carpometacarpal Joint
- 1993-97 Co-Principal Investigator, National Science Foundation, Understanding Human Joint Mechanics through Advanced Computational Models, Columbia University/RPI Collaborative Project
- 1993-00 Principal Investigator, National Institutes of Health, Mechano-Electrochemical Properties of Cartilage
- 1990-94 Principal Investigator, Bristol-Myers/Zimmer Grant for Excellence in Orthopaedic Research: Fundamental and Clinical Interdisciplinary Research on Diarthrodial Joints -- Hand, Knee and Shoulder
- 1989-92 Co-Principal Investigator, St. Giles Foundation, The Growth Plate in Pediatric Orthopaedics: A Biomechanical and Biochemical *In Vitro* Study
- 1989-91 Senior Investigator, Orthopaedic Research and Education Foundation, Biomechanics of the Shoulder, EL Flatow, PI
- 1988-92 Co-Principal Investigator, Syntex Laboratories, Inc., Studies on the Effects of Naproxen on Normal and Pond-Nuki OA Articular Cartilage Metabolism, Biochemistry and Biomechanics
- 1988-91 Principal Investigator, National Institutes of Health, Biomechanics of Normal Bovine and Human Meniscus, Columbia University/RPI Collaborative Project
- 1987-89 Senior Investigator, Orthopaedic Research and Education Foundation Grant, Correlates of Healing Cartilage Mechanical Properties, Biochemical Composition, MP Rosenwasser, PI
- 1987-91 Principal Investigator, National Institutes of Health Grant, Mechanics and Chemistry of Cartilage from Animal Models of OA and Joint Disuse, Columbia University/University of Miami Collaborative Project
- 1986-89 Principal Investigator, National Science Foundation Grant, Fundamental and Applied Research on Biomechanics of Diarthrodial Joints, Columbia University/RPI Collaborative Project
- 1985-90 Principal Investigator, National Institutes of Health Grant, Structure and Biorheology of Cartilage Proteoglycans, RPI/Montefiore Hospital Medical Center/Kennedy Institute of Rheumatology (London) Collaborative Project
- 1984-87 Principal Investigator, National Institutes of Health Grant, Biomechanics of Normal and Osteoarthritic Human Cartilage, RPI/University of Miami Medical School Collaborative Project
- 1983-86 Principal Investigator, National Institutes of Health Grant, Mechanics and Chemistry of Cartilage, RPI/Harvard Medical School Collaborative Project
- 1983-86 Principal Investigator, National Science Foundation Grant, Biomechanics of Diarthrodial Joints
- 1982-86 Principal Investigator, Surdna Foundation Endowment Fund on the Development of Biomechanics Research at RPI
- 1982 Principal Investigator, Biomedical Research Support Grant, The Acquisition of a Sensitive, Stable, Servo-Controlled Mechanical Testing Device for Tissue Properties
- 1981-84 Principal Investigator, The Kroc Foundation, Structure and Function of Proteoglycans in Normal and Osteoarthritic Cartilage
- 1981-84 Principal Investigator, National Institutes of Health Grant, Biomechanics of Normal and Osteoarthritic

- Human Cartilage, RPI/Harvard Medical School Collaborative Project
- 1980 Principal Investigator, Biomedical Research Support Grant, The Acquisition of MINC 11/03 Laboratory Instrument Control, Data Acquisition and Data Analysis System
- 1980-83 Co-principal Investigator, National Science Foundation Grant, Biomechanics of Diarthrodial Joints
- 1980-82 Principal Investigator, National Institutes of Health Grant, Mechanics, Electromechanics and Chemistry of Cartilage, Tri-Institutional Grant: RPI/Harvard Medical School/MIT
- 1978-80 Principal Investigator, General Motors Grant, Characterization of Impact Induced Microtrauma on Articular Cartilage
- 1977 Principal Investigator, Biomedical Research Support Grant, The Video Dimensional Analyzer for Tissue Mechanics Studies
- 1977-80 Co-principal Investigator, National Science Foundation Grant, Biorheological Characterization of Articular Cartilage and Synovial Fluid
- 1976-81 Principal Investigator, National Institutes of Health Grant, Biomechanics of Aging and Osteoarthritic Cartilage
- 1975-78 Co-principal Investigator, National Science Foundation Grant, Biomechanics of Normal and Pathological Synovial Joints
- 1974-76 Principal Investigator, National Science Foundation Grant, Biomechanics of Normal and Pathological Cartilage
- 1971-74 Principal Investigator, National Science Foundation Grant, Biomechanics of Synovial Joints

### **Professional Committees and Activities**

- 2010-13 Member, National Academy of Engineering Committee on Membership Policy
- 2009 Chair, National Academy of Engineering, Regional Meeting at Columbia University
- 2009- Member of BME Advisory Committee, National Chiao Tung University, Taiwan
- 2008-10 Member, Med-X International Scientific Advisory Committee, Shanghai Jiao Tung University
- 2007 Reviewer, Australian Academy of Sciences
- 2007 FDA Continuing Education Course for Cartilage and Osteoarthritis
- 2007-11 Advisory Board, World Association of Chinese Biomedical Engineers
- 2007-10 Member, External Advisory Committee, Department of Biomedical Engineering, Hong Kong University
- 2007 Member, Round Table Discussion on Future Direction of NIAMS
- 2006-07 Member, IOM Committee on NASA's Space Flight Health Standards
- 2006-07 Member, NRC Panel on Benchmarking the Research Competitiveness of the United States in Mechanical Engineering
- 2006-09 Co-Chairman, Global Development Team, Fu Foundation School of Engineering and Applied Science, Columbia University
- 2006- Chair, Advisory Committee for Biomedical Engineering, Tsinghua University, China
- 2006-09 Nominator for Medicine and Mathematics, The Shaw Foundation, Hong Kong
- 2006-10 Member, ASME Robert H. Thurston Lecture Award Committee
- 2006-08 Reviewer, Fulbright Science and Technology Award, Department of State of the United States
- 2005-06 Member, Benchmarking for Mechanical Engineering, National Research Council, National Academies
- 2005- Chairman, Advisory Committee, Research Centre for Musculoskeletal Bioengineering, Hong Kong Polytechnic University
- 2004 Nominator, The Heinz Prize, Heinz Family Foundation
- 2004-06 Chair, Departmental Academic Advisory Committee, Jockey Club Rehabilitation Engineering Centre, Hong Kong Polytechnic University
- 2003-12 Steering Committee of the World Association for Chinese Biomedical Engineers
- 2002-06 Treasurer, World Committee on Biomechanics
- 2003-08 Advisor to HRH Princess Sirindhorn for Biomedical Engineering in Thailand
- 2002 President's Advisory Committee for Biomedical Engineering, Carnegie Mellon University
- 2002-05 Member, Committee on Longitudinal Study of Astronaut Health, NASA
- 2002-03 Member, Nominations Committee, National Academy of Engineering
- 2002 Member, President's Advisory Committee on Biomedical Engineering, Carnegie Mellon University
- 2002-05 Member, Biomedical Engineering Committee, Academy of Radiology Research
- 2001-08 Member, Standing Committee on Aerospace Medicine and Medicine of Extreme Environments (CAMMEE), IOM Advisory Committee for NASA
- 2001-04 Member, Committee on Membership, National Academy of Engineering

2000-03 Member, Russ Prize Committee, National Academy of Engineering  
2000-01 Chairman, National Academy of Engineering Mid Atlantic Regional Meeting, June, 2001  
2000-02 Member, International Steering Committee, 4th World Congress of Biomechanics  
1999-05 Chairman, Advisory Committee, Division of Medical Engineering Research, National Health Research Institute, Taiwan  
1999 Member, Long-Range Planning Committee, NIAMS, July 1999  
1999 Moderator, Osteoarthritis Workshop, NIAMS, July 1999  
1999-01 Chair, Bioengineering Section, National Academy of Engineering  
1998-99 Member, Committee on Space Biology and Medicine, Space Studies Board of NASA, National Research Council  
1998 Co-Chair, Mathematical Modeling Panel, NIH98 Bioengineering Symposium  
1997-00 Chair, Research Committee, American Shoulder and Elbow Surgeons  
1997-99 Vice-Chair, Bioengineering Section, National Academy of Engineering  
1997-99 NRC Liaison Officer for Bioengineering, National Academy of Engineering  
1996-99 Peer Committee, Bioengineering Section, National Academy of Engineering  
1995 Chair, Site Visiting Committee, Musculoskeletal Research Center, University of Pittsburgh, November, 1995  
1995 Member, NIH Study Section for Osteoarthritis Research  
1995 Guest Reviewer, Whitaker Biomedical Engineering Research Award  
1994 Member, Biomedical Engineering Review Panel, National Science Foundation  
1994-06 Member, World Council for Biomechanics  
1993-96 Board of Directors, Biomedical Engineering Society  
1993-96 Hoar Research Fellowship Committee, New York Academy of Medicine  
1993-95 Member, Research Committee, American Shoulder and Elbow Surgeons  
1992-96 Co-Chairman, Grants Review Committee, Orthopaedic Research and Education Foundation  
1992-96 Member, Grants Board, Orthopaedic Research and Education Foundation  
1991-94 Chairman, U.S. National Committee on Biomechanics  
1991 Member, NIA Special Study Section  
1991 Member, NIAMDS Special Study Section  
1990-94 Member, Program Committee, Second World Congress on Biomechanics, Amsterdam, The Netherlands  
1990-94 Member, International Steering Committee, Second World Congress on Biomechanics, Amsterdam, The Netherlands  
1990-91 Member, National Research Council Committee on Materials: Synthetic Hierarchical Structures  
1990 Chairman, NIH GMA-1 AHR-MA Special Study Section  
1989-90 Chairman, Symposium on Biomechanics of Diarthrodial Joints, First World Congress on Biomechanics  
1988-94 Member, Basic Science Committee, AAOS  
1988-91 Chair, Subcommittee for Government Relations, USNCB on Biomechanics  
1988-91 Vice Chair, U.S. National Committee on Biomechanics  
1988-90 Member, Program Committee, First World Congress on Biomechanics  
1988 Chair, Panel Review Committee, BRAD Program, NSF  
1986-90 Member, International Steering Committee, First World Congress on Biomechanics  
1985-88 Secretary-Treasurer, U.S. National Committee on Biomechanics  
1985-92 Member, Research Grant Review Committee, OREF  
1984-85 Chair, Bioengineering Division, American Society of Mechanical Engineers  
1984 Chair, NIH Special Study Section on Orthopaedics and Musculoskeletal Systems  
1984-85 Member, NIH Workshop Committee on Osteoarthritis  
1983 Member, Constitution Committee Orthopaedic Research and Education Foundation  
1982-84 Member, Executive Committee, Bioengineering Division, American Society of Mechanical Engineers  
1982-85 Member, Faculty Committee on Promotion and Tenure, RPI  
1982 Co-Chairman, Task Force on Documentation for the New NIH Institute on Arthritis, Musculoskeletal, and Skin Diseases, American Academy of Orthopaedic Surgeons  
1982-84 Member, Board of Directors, Orthopaedic Research Society  
1982 Chairman, By-laws Committee United States National Committee on Biomechanics  
1982-83 President, Orthopaedic Research Society  
1982-83 Secretary-Treasurer, Bioengineering Division, American Society of Mechanical Engineers  
1982-84 Chairman, Orthopaedics and Musculoskeletal Diseases Study Section, National Institutes of Health

1981 Member, Steering Committee on Sport Injuries to Knee, National Institutes of Health  
 1980-82 Member, Applied Physiology and Orthopaedic Study Section, National Institutes of Health  
 1979 Group Leader, Orthopaedic Science and Bioengineering Group, Visit to The People's Republic of China, August 17-31, 1979  
 1979-80 Chairman, Program Committee, Bioengineering Division, American Society of Mechanical Engineers  
 1979-80 Chairman and Founder, First Gordon Research Conference on Bioengineering and Orthopaedic Science  
 1978-79 President, American Association of University Professors, RPI Chapter  
 1978 Member, Executive Committee Orthopaedic Research Society  
 1978 Chairman, Program Committee, Orthopaedic Research Society  
 1978 Member, Scientific Program Committee American Academy of Orthopaedic Surgeons  
 1977-83 Member, Joint Bioengineering and Applied Mechanics Committee on Biomechanics, American Society of Mechanical Engineers  
 1977 Member, Nominating Committee, American Society of Biomechanics  
 1976-78 Member, Program Committee, Orthopaedic Research Society  
 1974-80 Member, Research Council on Lubrication, American Society of Mechanical Engineers Lubrication of Biological Joints

### Professional Societies

American Academy of Mechanics  
 American Academy of Orthopaedic Surgeons (Associate Member)  
 American Association for the Advancement of Science  
 American Association of University Professors (President, RPI Chapter)  
 American Physical Society: Fluid Dynamics Division; Biophysics Division  
 American Shoulder and Elbow Surgeons (Affiliate Member)  
 American Society of Biomechanics (Founding Member)  
 American Society of Engineering Educations  
 American Society of Mechanical Engineers (Fellow)  
 Biomedical Engineering Society (Board of Director, 1993-1997)  
 Chinese Speaking Orthopaedic Society  
 International Society of Biorheology  
 International Cartilage Repair Society  
 New York Academy of Medicine (Fellow)  
 Orthopaedic Research Society (President, 1982)  
 Osteoarthritis Research Society International

### Consultations

2009-2011 Advisory Committee for Biomedical Engineering, National Chiao Tung University  
 2009- External Examiner of Medical Engineering, BEng Program, Hong Kong University  
 2003 University of Virginia, Orthopaedic Surgery  
 2002 Carnegie Mellon University  
 1998 Johnson & Johnson PI  
 1996-99 Shriners' Hospital Medical Center, Springfield, MA  
 1996 Department of Orthopaedic Surgery, University of Pittsburgh  
 1995-97 Alza Corporation, Palo Alto, California  
 1994-99 International Board of References, Interdisciplinary Centre for Musculoskeletal Bioengineering and Rehabilitation, Hong Kong Polytechnic University  
 1992-96 Syntex Corporation, Palo Alto  
 1978-82 Biomechanics Unit, Helen Hayes Hospital, Haverstraw, New York  
 1978-83 Biomedical Sciences Group, General Motors Research Laboratory, Warren, Michigan  
 1974-81 Harvard Medical School, Skeletal Research Laboratory, Children's Hospital Medical Center, Boston  
 1973-76 Touro Research Institute, New Orleans  
 1966-67 Mechanical Technology Incorporated, Latham, NY



## **Reviewer**

### **Journals and Publishers**

American Journal of Sports Medicine  
Annals of Biomedical Engineering  
Applied Mechanics Reviews  
Arthritis and Rheumatism  
Australian Academy of Science  
Biomaterials  
Biophysical Journal  
Biopolymers  
Biorheology  
Bulletin of Mathematical Biology  
Calcified Tissue Research  
Cambridge University Press  
Cellular and Molecular Bioengineering  
Clinical Orthopaedics and Related Research  
Connective Tissue Research  
Journal of Applied Mechanics  
Journal of Biomechanics  
Journal of Biomechanical Engineering  
Journal of Bone and Joint Surgery  
Journal of Experimental Biology  
Journal of Fluid Mechanics  
Journal of Lubrication Technology  
Journal of Mathematical Biology  
Journal of the Mechanics and Physics of Solids  
Journal of Musculoskeletal Research  
Journal of Orthopaedic Research  
Journal of the Acoustical Society of America  
Lippincott-Raven  
McGraw Hill Publishers  
Molecular and Cellular Biomechanics  
Mechanics of Materials  
Osteoarthritis and Cartilage  
Oxford Press  
Proceedings of the Institute of Mechanical Engineers, London  
Proceedings of the National Academy of Sciences  
Raven Press  
Smithsonian  
Spine  
Springer-Verlag Publishers  
Tissue Engineering  
Wear

### **Government Agencies and Foundations**

Army Research Office  
Arthritis Foundation  
Australian Research Council  
Cambridge University Press  
Ford Foundation  
German Scientific Research Foundation  
Hoar Foundation, New York Academy of Medicine  
Hong Kong Medical Research Council  
Kroc Foundation  
Medical Research Council of Canada

National Institutes of Health  
National Aeronautics and Space Administration  
National Health and Research Institute, Taiwan  
National Research Council  
National Science Foundation  
Office of Naval Research  
Orthopaedic Research and Education Foundation  
Rockerfeller Foundation  
SC NASA EPSCoR Research and Education Awards Program  
Swiss National Science Foundation  
Texas Academy of Medicine, Engineering and Science  
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## **PUBLICATIONS**

### **Edited Books**

1. Mow VC, Ratcliffe A, Woo S L-Y (eds): Biomechanics of Diarthrodial Joints, Vol I, New York, Springer-Verlag, 1990, pp 451
2. Mow VC, Ratcliffe A, Woo S L-Y (eds): Biomechanics of Diarthrodial Joints, Vol II, New York, Springer-Verlag, 1990, pp 464
3. Mow VC and Hayes WC (eds): Basic Orthopaedic Biomechanics, New York, Raven Press, 1991, 1st Edition, pp453
4. Mow VC, Arnoczky SP, Jackson DL (eds): Knee Meniscus: Basic and Clinical Foundations, New York, Raven Press, 1992, pp 190
5. Mow VC, Guilak F, Tran-Son-Tay R, Hochmuth RM (eds): Cell Mechanics and Cellular Engineering, New York, Springer-Verlag, 1994, pp564
6. Mow VC and Hayes WC (eds): Basic Orthopaedic Biomechanics, Lippincott-Raven Publishers, Philadelphia, PA, 1997, 2nd Edition, pp 514
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409. Likhitpanichkul M, Wan LQ, Guo XE, Mow VC: Determination Of Tension-Compression Nonlinear Properties And Fixed Charge Density Of Articular Cartilage Using A Triphasic, Conewise Linear Elastic Model, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, Podium, S25; #7803, July 31 – August 5, 2006.
410. Lu XL, Miller C, Guo XE, Mow VC: Triphasic Podium, Indentation of Articular Cartilage: The Simultaneous Determination of both Mechanical Properties and Fixed Charge Density, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, Podium, S25, #7804, July 31 – August 5, 2006.
411. Wan LQ, Miller C, Guo XE, Mow VC: An Exact Solution for Charged-Hydrated Biological Tissues under Unconfined Compression: The Triphasic Paradigm, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, Podium, S25; #7802, July 31 – August 5, 2006.
412. Likhitpanichkul M, Wan QL, Guo XE, Mow VC: Simultaneous Determination of Tension-Compression Nonlinear Properties and Fixed Charge Density of Articular Cartilage from Unconfined Compression, Trans Orthop Res Soc, Podium, February 10 – 13, 2007
413. Wan QL, Lu XL, Arnold DC, Guo XE, Mow VC: Determination Of Fixed Charge Density Inside Articular Cartilage From Unconfined Compression And Validation With Chemical Assay, 15<sup>th</sup> Annual Symp Comp Methods in Orthopaedic Biomechanics, Pre-ORS Podium, February 10, 2007
414. Lu XL, Guo XE, Mow VC: Simplification of Triphasic Mixture Theory for Articular Cartilage, 15<sup>th</sup> Annual Symp Comp Methods in Orthopaedic Biomechanics, Pre-ORS Podium, February 10, 2007
415. Likhitpanichkul M, Guo XE, Mow VC: In Situ Transient Deformation of Chondrocytes under Unconfined Compression: Experimental Measurements and Triphasic Finite Element Model, 2007 ASME Summer Bioengineering Conference, Keystone, Colorado, USA (#SBC2007: 176105)
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418. Lu XL, Liu XS, Huo B, Mow VC, Guo XE: Biomechanical Properties of Cartilage of Mandibular Condyle in Procine TMJ. Orthop Res Soc Trans, March, 2008, Podium
419. Wan LQ, Kang S, Eng G, Gimble J, Guo XE, Mow VC, Vunjak-Novakovic G: Geometric Control of Mechanical Forces and Stem Cell Differentiation, ASME Summer Bioengineering Conference, Marco Island, Florida, June 23, 2008, Podium
420. Khanarian NT, Burga R, Haney N, Mow VC, Lu HH: Composite Scaffold for Osteochondral Interface Tissue Engineering, Orthop Res Soc Trans, March 2010, Podium

## Patents

1. Bioreactor for generating functional cartilage tissue. GA Ateshian, VC Mow, CT Hung, WB Valhmu, RL Mauck, MA Soltz, CB Wang, WIPO, Patent Disclosure Filed 3/11/01.
2. Anatomically correct prosthesis and method and apparatus for manufacturing. GA Ateshian, VC Mow, RJ Pawluk, MP Rosenwasser, US Patent No. 6,126,690, October 3, 2002.
3. Bioreactor for generating functional cartilaginous tissue, Clark T Hung, Gerard H. Aouni-Ateshian, Robert L Mauck, Michael A Soltz, Wilmot B Valhmu, Changbin B Wang, Van C. Mow, Patent record available from US Patent Office
4. Anatomically correct prosthesis and method and apparatus for manufacturing prostheses, Ateshian, Gerard A. Mow, Van C., Pawluk, Robert J. Rosenwasser, Melvin P. Patent record available from the US Patent Office.
5. Three dimensional multibody modeling of anatomical joints. Aouni-Ateshian, Gerard H. Blankevoort, Leendret, Kwak, S. Daniel, Mow, Van, C., Filed 7/11/97, US Patent No. 6,161,080, December 12, 2000.

## **SCIENTIFIC EXHIBITS**

- Biomechanics of Compression Plates, A Scientific Exhibit at the 40th Annual Meeting of the American Academy of Orthopaedic Surgeons, February 1973, CR Wirth MD, CJ Campbell MD, Albany Medical College, RH Trathen MD, VC Mow PhD, MJ Askew PhD, RPI
- Ultrabiomechanical Consideration for Surface Alterations of Articular Cartilage, A Scientific Exhibit at the 40th Annual Meeting of the American Academy of Orthopaedic Surgeons, February 1973, I Redler MD, ML Zimny MD, Touro Research Institute, VC Mow PhD, RPI
- The Tidemark, What is It? A Scientific Exhibit at the 41st Annual Meeting of the American Academy of Orthopaedic Surgeons, February 1974, I Redler MD, J Mansell, Touro Research Institute, VC Mow PhD, RPI

## **FILM**

Visualization of Fluid Film Formation at the Articular Surface, November 15, 1978, M Ancona, WM Lai, VC Mow

## **INVITED AND PROFESSIONAL LECTURES, AND MODERATOR OF TECHNICAL SESSIONS**

1. Biomechanics Problems in Synovial Joints, The Rand Corporation, June, 1967
2. The Role of Lubrication in Biomechanical Joints, Mechanical Technology, Inc, August, 1967
3. Biomechanics Problems in Synovial Joints, Princeton University, November, 1967
4. Biomechanics Problems in Synovial Joints, State University of New York at Stony Brook, February, 1968
5. Analysis of Contacting Elastic Ellipsoids, Courant Institute of Mathematical Sciences, NYU, April, 1968
6. Biomechanical Lubrication of Synovial Joints, Annual Meeting of the ASLE, Atlantic City, New Jersey, October, 1968
7. Biomechanics Problems in Synovial Joints, University of California at Los Angeles, April, 1969
8. Ultrasonic Methods in Measuring Stratified Biological Tissue, Gordon Research Conference on Friction, Lubrication and Wear, Tilton, New Hampshire, August, 1970
9. Biomechanics of the Musculoskeletal System, Albany Medical College, December, 1971
10. Some Surface Characteristics of Articular Cartilage, 19th Annual Meeting of the Orthopaedic Research Society, Las Vegas, January, 1973
11. Stability of the Articular Surface During Joint Motion, Cornell University, April, 1973
12. Some Mechanics Problems in Synovial Joints, RPI-Hartford, April, 1973
13. Stability of Articular Surface During Joint Motion, National Science Foundation Grantees' Conference, Ohio State University, May, 1973
14. Stability of Articular Surface During Joint Motion, Massachusetts Institute of Technology, April, 1973
15. Surface Characteristics of Articular Cartilage and Stability of Articular Surface During Joint Function, 1973 Biomechanics Symposium, Georgia, June, 1973
16. Some Fluid Mechanical Problems in Synovial Joint Articulation, National Science Foundation Conference of Biofluid Dynamics, RPI Lighthill Lecture Series, July, 1973
17. Biomechanics of the Compression Plate, Annual Meeting of the ACEMB Minneapolis, Minnesota, October, 1973
18. Biomechanics of Compression Plating and Biomechanical Etiology of Chondrodegeneration, Mayo Clinic, October, 1973
19. The Stability of Articular Surface, University of Texas at Arlington, January, 1974
20. Movement of Interstitial Fluid Through Articular Cartilage During Function: A Three Layer Model, 20th Annual Meeting of Orthopaedic Research Society, Dallas, January, 1974
21. Two Fluid Mechanical Problems of Synovial Joints, Joint Seminar, University of Illinois at Urbana, February, 1974
22. Biomechanical Etiology of Osteoarthritis, Cornell University, April, 1974
23. Fluid Mechanical Problems in Synovial Joint Mechanics, Northwestern University, May, 1974
24. Principles of Fracture Fixation by Compression Plates, University of Pennsylvania Medical School, May, 1974
25. Biomechanical Etiology of Osteoarthritis, Case Western Medical School, May, 1974
26. A Lubrication Mechanism of Animal Joints, Gordon Research Conference on Friction, Lubrication and Wear, Colby College, New Hampshire, June, 1974
27. The Fundamental Fluid Transport Mechanisms Through Articular Cartilage, Imperial College, London, England, September, 1974
28. On the Lubrication Mechanisms of Synovial Joints, Leeds University, Leeds, England, September, 1974
29. An Experimental Determination of Fluid Flow Through Articular Cartilage, CNRS, Paris, France, September, 1974
30. On the Mechanics of Synovial Joints, University of Zurich, Zurich, Switzerland, September, 1974
31. The Mechanics of Synovial Joints, The Technical University of Denmark, Copenhagen, Denmark, September,



1974

32. Lubrication of Synovial Joints, The Technical University of Norway, Trondheim, Norway, September, 1974
33. Normal and Pathological Mechanisms of Joint Lubrication, Biomechanics Course of AAOS, Cleveland, November 7, 1974
34. Movement of Interstitial Fluid Through Articular Cartilage During Function: A Three Layer Model, Winter Annual Meeting, ASME, New York, November, 1974
35. Some New Concepts in the Etiology of Osteoarthritis, Touro Research Institute, New Orleans, January 24, 1975
36. The Effect of Viscoelasticity on the Squeeze Film Action of Lubrication, 21st Meeting of the Orthopaedic Research Society, February 27, 1975
37. Ultrastructural Changes of Aging Articular Cartilage, 21st Meeting of the Orthopaedic Research Society, February 27, 1975
38. Biomechanical Etiology of Osteoarthritis, Joint MIT-Harvard Colloquium, April 17, 1975
39. The Biomechanical Function of Normal and Pathological Synovial Joints, AAOS Instructional Course on Biomechanics, Case Western Reserve University, April 30, 1975
40. Biomechanical Principle of Compression Plate Fixation, University of Pennsylvania, November 3, 1975
41. The Nonlinear Interaction Between Cartilage Deformation and Interstitial Fluid Flow, University of Texas, Arlington, Texas, December 5, 1975
42. Lubrication of Human Joints, American Academy of Orthopaedic Surgeons Instructional Course Lecture, January 31, 1976
43. Moderator, Session on Biomechanics, 22nd Annual Meeting Orthopaedic Research Society, 1976
44. Lubrication and Osteoarthritis, Hudson Mohawk Chapter of ASME, February 12, 1976
45. A Biomechanical Problem from Synovial Joint Physiology, Applied Mechanics Colloquium, Harvard University, February 25, 1976
46. Lubrication of Animal Joints, The Biomechanics Course, Cleveland, May 28, 1976
47. Biomechanics of Animal Joints, Discussion Leader, Gordon Research Conference, Colby College, New London, New Hampshire, June 14-18, 1976
48. Stress Relaxation in Articular Cartilage During Confined Compression, 7th International Congress on Rheology, Goteborg, Sweden, August 26, 1976
49. Mechanical Properties of Articular Cartilage, Orthopaedic Research Laboratory, Harvard Medical School, October 14, 1976
50. Fluid Flow and Deformation of Articular Cartilage, Orthopaedic Research Laboratory, Harvard Medical School, October 14, 1976
51. Deformational Character of Articular Cartilage, Orthopaedic Research Laboratory, Massachusetts General Hospital, October 15, 1976
52. Rheology and Osteoarthritis, The National Bureau of Standards, Gaithersburg, Maryland, October 22, 1976
53. The Influence of the Nonlinear Interaction Between Deformation and Interstitial Flow on the Creep Behavior of Cartilage, Winter Annual Meeting, ASME, December 7, 1976
54. Moderator, Advances in Bioengineering Winter Annual Meeting of ASME, 1976
55. Biomechanical Physiology of Normal and Pathological Synovial Joints Bioengineering Seminar, University of California at San Diego, January 28, 1977
56. The Normal and Pathological Physiology of Synovial Joints, AMES - Bioengineering Seminar, University of California at San Diego, January 28, 1977
57. Stress Relaxation in Articular Cartilage, 23rd Annual Meeting Orthopaedic Research Society, Las Vegas, February 1, 1977
58. Biomechanics of Normal and Pathological Synovial Joints, 23rd Annual Meeting Orthopaedic Research Society, Las Vegas, February 5, 1977
59. Moderator, Session on Bone Biomechanics, 23rd Annual Meeting Orthopaedic Research Society, 1977
60. Biophysics and Joint Function, Harvard Medical School, February 10, 1977
61. Biomechanics of Internal Fixation, VC Mow and CR Wirth, American Academy of Orthopaedic Surgeons Basic Science Lecture Series, June 23, 1977
62. Recent Advances in Cartilage Biomechanics and The Normal and Pathological Functions of Synovial Joints, Mayo Clinic, October 3-4, 1977
63. Biomechanics of Normal and Pathological Joints, Montefiore Hospital Medical Center, Bronx, October 31, 1977
64. On the Incompressibility of the Interstitial Water in Articular Cartilage, Winter Annual Meeting, ASME, Atlanta, November, 1977
65. Moderator, Session on Cartilage Biomechanics, 24th Annual Meeting Orthopaedic Research Society, 1978

66. Biphase Rheological Properties of Articular Cartilage, Hospital for Joint Diseases, New York, April 1, 1978
67. Rheological Properties of Articular Cartilage, General Motors Research Laboratory, Detroit, April 3, 1978
68. Mechanics of Animal Joints, American Academy of Orthopaedic Surgeons, Greenwich, Connecticut, May 11, 1978
69. Lecture, American Academy of Orthopaedic Surgeons, Basic Science Lecture Series, 1978
- 70-81. Biphase Rheological Properties of Articular Cartilage and The Lubrication Mechanism for Synovial Joints, NATO Senior Post-Doctoral Fellowship, 1978 - Université de Technologie de Compiègne, Compiègne, France, May 25, 1978 - Academisch Ziekenhuis, Pallenberg, Belgium, May 31, 1978 - Rijksuniversiteit te Leiden, Leiden, The Netherlands, June 1, 1978 - University of Nijmegen, Nijmegen, The Netherlands, June 5, 1978 - University of Technology, Eindhoven, The Netherlands, June 6, 1978 - Technical University of Twente, Enschede, The Netherlands, June 9, 1978 University of Goteborg, Goteborg, Sweden, June 14, 1978 - Freien Universität Berlin, Berlin, Germany, June 22, 1978 - University of Strathclyde, Glasgow, Great Britain, June 30, 1978 - University of Durham, Great Britain, July 5, 1978 - University of Leeds, Great Britain, July 7, 1978 - University of Manchester, Great Britain, July 10, 1978 - University of London, Great Britain, July 13, 1978
82. Chairman, Session on Articular Cartilage Rheology, 3rd International Congress on Biorheology, UCSD, La Jolla, Ca, August, 1978
83. Invited Symposium Speaker, 3rd International Congress of Biorheology, UCSD, La Jolla, Ca, August, 1978
84. The Intrinsic Mechanical Properties of Articular Cartilage and Joint Lubrication, Distinguished Lecture Series, Hospital for Special Surgery Cornell Medical School, New York, November 16, 1978
85. Visualization of Fluid Film Formation at the Articular Surface, 25th Annual Meeting Orthopaedic Research Society, San Francisco, February, 1979
86. Moderator, Session on Implant Wear, 25th Annual Meeting Orthopaedic Research Society, San Francisco, February, 1979
87. Mechanics of Animal Joints, Sigma Xi Lecture, General Telephone and Electric, Waltham, Massachusetts, April 5, 1979
88. Biomechanics of Normal and Pathological Diarthrodial Joints, Albany Medical College, Albany, New York, April 20, 1979
89. Structure and Function of Articular Cartilage, Greenwich Course on Biomechanics, sponsored by the Cornell Medical School, Greenwich, Connecticut, May 9, 1979
90. Structure and Function of Articular Cartilage, Tufts Medical School, Boston, June 2, 1979
91. Selected Unresolved Problems in Synovial Joint Biomechanics, Invited Keynote Lecture, 1979 Biomechanics Symposium, ASME, June 1979
92. Mechanics of Cartilage, University of Pennsylvania, July 11, 1979
93. Biomechanics of Synovial Joints, Sichuan Medical College, Chengdu, The People's Republic of China, August 21, 1979
94. The Lubrication Mechanism for Articular Cartilage, Sichuan University of Science and Technology, Chengdu, The People's Republic of China, August 22, 1979
95. The Biomechanical Physiology of Synovial Joints, Chinese Academy of Medicine, Beijing, The People's Republic of China, August 24, 1979
96. New Concepts in Musculoskeletal Research, Moderator, Guangzhou Provincial Hospital, The People's Republic of China, August 30, 1979
97. Mechanics of Normal and Osteoarthritic Joints, Mayo Clinic, November 10, 1979
98. Chairman, Biomechanics II Session, Winter Annual Meeting, ASME, New York, December 5, 1979
99. Investigation of Cartilage-Collagen-Proteoglycan Interaction via its Swelling Behavior, 26th Annual Meeting of the Orthopaedic Research Society, Atlanta, February 5, 1980
100. Biomechanics of Synovial Joints, Mechanical Engineering Department Colloquium, Rutgers University, February 20, 1980
101. Some Nonlinear Transport Properties Through Connective Tissues, Department of Mechanical and Aerospace Engineering Colloquium, Cornell University, March 25, 1980
102. Characterization of Microtraumas Induced by a Single Impact to the Knee, Biomedical Science Department, General Motors Research Laboratory, Warren, Michigan, July 2, 1980
103. Viscoelastic Properties of Proteoglycan Aggregates and Subunits, Gordon Research Conference, Kimball Union Academy, Meriden, New Hampshire, August 18, 1980
104. Structure and Function of Joint Cartilage, Cornell School of Medicine, Continuing Education Course, White Plains, New York, September 19, 1980

105. Implications for Collagen Proteoglycan Interactions from Cartilage Stress Relaxation Behavior in Isometric Tension, Merck, Sharpe and Dohme International Symposium on Inflammation and Osteoarthritis, Palm Aire, Florida, October 19-22, 1980
106. Biomechanics of Normal and Osteoarthritic Cartilage, 25th Anniversary of the Hospital for Special Surgery, New York, November 13, 1980
107. Characterization of Impact Induced Microtrauma to Articular Cartilage, Winter Annual Meeting, ASME, Chicago, November 17, 1980
108. Mechanical Behavior of Articular Cartilage, Rush Presbyterian-St. Luke Medical School, Department of Orthopaedic Surgery, Illinois, November 20, 1980
109. Biomechanics and Osteoarthritis, Department of Mechanical Engineering, McGill University, Montreal, Canada, December 3, 1980
110. Biomechanics and Osteoarthritis, Department of Orthopaedic Surgery, Montreal General Hospital, December 4, 1980
111. Rheology of Proteoglycan Macromolecules in Solution and in Articular Cartilage, 17th Annual Meeting of the Society of Engineering Science, Georgia Institute of Technology, Atlanta, December 16, 1980
112. Biomechanics and Osteoarthritis, Department of Mechanical Engineering, University of Colorado at Boulder, February 16, 1981
113. Moderator, Session on Disc and Cartilage, 27th Annual Meeting Orthopaedic Research Society, Las Vegas, February 24, 1981
114. Variation of Intrinsic Properties of Cartilage Matrix with Water and Uronic Acid Contents, Kappa Delta Lecture, 27th Annual Meeting Orthopaedic Research Society, Las Vegas, February 26, 1981
115. External Reviewer: Mayo Clinic Biomechanics Program, Rochester, Minnesota May 6-8, 1981
116. Structure and Function of Proteoglycans, Combined Rush Presbyterian-St. Luke's Medical School and University of Illinois at Chicago Circle Colloquium, May 22, 1981
117. Biomechanics of Articular Cartilage and Joint Lubrication, Combined Rush Presbyterian-St. Luke Medical School and University of Illinois at Chicago Circle, May 22, 1981
118. Moderator, Session on Soft Tissue Mechanics, 14th Biomaterials Meeting, RPI, May 30, 1981
119. Biomechanics of Diarthrodial Joints, Course on Biomechanics, Chengdu University of Science and Technology, The People's Republic of China, July 13-17, 1981
120. Biomechanics of Articular Cartilage, Keynote Lecture, First National Meeting on Biomechanics, Shanghai, The People's Republic of China, July 23, 1981
121. Mechanics of Diarthrodial Joints, Shanghai University of Science and Technology, The People's Republic of China, July 24, 1981
122. Biomechanics of Articular Cartilage and Joint Lubrication, Tokyo University, Japan, July 29, 1981
123. Biorheological Properties of Proteoglycan Solution, 4th International Congress of Biorheology, Jikei University, School of Medicine, Tokyo, Japan, July 30, 1981
124. Co-Chairman, Session on Bone and Ligament, 4th International Congress of Biorheology, Jikei University, School of Medicine, Tokyo, Japan, July 27 - August 1, 1981
125. Biomechanics of Articular Cartilage, University of Southern California, Department of Orthopaedics, Los Angeles, November 5, 1981
126. Co-Chairman, Session on Present Status and Future Funding Trends in Biomechanics, ASME, Winter Annual Meeting, November 16, 1981
127. Moderator, Session on Cartilage Degeneration, 28th Meeting Orthopaedic Research Society, New Orleans, Louisiana, January 19, 1982
128. Biomechanics and Osteoarthritis, West Virginia University, Department of Orthopaedic Surgery, Morgantown, West Virginia, March 24, 1982
129. Current Concepts in the Etiology of Cartilage Breakdown, Albany Medical College, Department of Medicine, Albany, New York, April 8, 1982
130. Composition & Structure and Material Properties & Function of Articular Cartilage: A Review, NIH/AAOS Workshop on Sports Medicine Research: The Knee, Denver, Colorado, April 29, 1982
131. Bioengineering Workshop on Osteoarthritis, sponsored by the Canadian Orthopaedic Research Society, Kingston, Ontario, June 11, 1982
132. Structure and Function of Articular Cartilage, Course on Biomechanics, Cornell School of Medicine, White Plains, New York, June 17, 1982
133. Physics of Fluid Flow Through Articular Cartilage, University of Lund, Sweden, September 13, 1982
134. Bioengineering Studies on Structure and Function of Articular Cartilage, University of Nijmegen, The

- Netherlands, September 15, 1982
135. Physics of Fluid Flow Through Connective Tissues, Imperial College, England, September 20, 1982
  136. Role of Proteoglycans in Controlling Articular Cartilage Properties, Kennedy Institute of Rheumatology, London, England, September 21, 1982
  137. Session Chairman, Biomechanical Properties of Bone, British Connective Tissue Society Meeting, Southampton, England, September 22, 1982
  138. Biorheological Properties of Proteoglycan Solutions, Invited Lecture, British Connective Tissue Society Meeting, Southampton, England, September 23, 1982
  139. Physics of Flow Through Connective Tissues During Deformation, Invited Keynote Lecture, American Society of Biomechanics, Seattle, October 14, 1982
  140. Moderator, Session on Fluid Mechanics, 6th Annual Meeting of the American Biomechanics Society, Seattle, October 14, 1982
  141. Workshop on Development of Orthopaedics Bioengineering Laboratory, Association of Orthopaedic Chairmen Meeting, Washington, DC, November 7, 1982
  142. Structure and Flow Properties of Proteoglycan Solutions, Invited Colloquium Lecture, NIDR, Bethesda, Maryland, February 16, 1983
  143. Correlative Studies on Viscoelastic Shear Properties and Chemical Composition of Articular Cartilage, 29th Meeting Orthopaedic Research Society, Anaheim, California, March 9, 1983
  144. Moderator, Session on Soft Tissue Mechanics, 29th Meeting Orthopaedic Research Society, Anaheim, California, March 8, 1983
  145. Presidential Address, 29th Meeting Orthopaedic Research Society, Anaheim, California, March 10, 1983
  146. Biomechanics and Biology of Impact Trauma on Articular Cartilage, General Motors Research Laboratory, Warren, Michigan, April 20, 1983
  147. Structure and Hydrodynamic Properties of Proteoglycan Solutions, First China-Japan-U.S. Biomechanics Conference, Wuhan, China, May 9, 1983
  148. Moderator, Session on Soft Tissue Mechanics, First China-Japan-U.S. Biomechanics Conference, Wuhan, China, May 11, 1983
  149. Kinetic Swelling Behavior of Articular Cartilage, Shanghai University of Science and Technology, May 19, 1983
  150. Response of an Articular Cartilage Layer Subjected to a Spreading Pressure Distribution Simulating Walking, American Society of Mechanical Engineers Applied Mechanics, Bioengineering and Fluids Engineering Conference, University of Houston, Texas, June 20, 1983
  151. The Role of Engineering in Musculoskeletal and Orthopaedic Research, Torch International, Americana Inn, Albany, NY, July 13, 1983
  152. Recent Advances in Synovial Joint Biomechanics, Stanford University, August 23, 1983
  153. Engineering Principles Applied to Biomedical Sciences, Worlds of Experience Lecture Series, Rensselaer Polytechnic Institute, Troy, NY, October 18, 1983
  154. Molecular Structure and Function Relationship of Connective Tissues, Duke University, Chapel Hill, North Carolina, December 8, 1983
  155. Effect of Chondroitinase ABC Treatment on the Tensile Behavior of Bovine Articular Cartilage, 30th Annual Meeting of the Orthopaedic Research Society, Atlanta, February 6, 1984
  156. A Geometric Model of Collagen-Proteoglycan Interaction for Kinetic Swelling Experiments, 30th Annual Meeting of the Orthopaedic Research Society, Atlanta, February 6, 1984
  157. Moderator, Session on Ligament Mechanics, 30th Annual Meeting of the Orthopaedic Research Society, Atlanta, February 7, 1984
  158. Contribution of Donnan Osmotic Pressure Towards the Biphasic Compressive Modulus of Articular Cartilage, 30th Annual Meeting of the Orthopaedic Research Society, Atlanta, February 8, 1984
  159. Structure and Function Relationship for Connective Tissues, Dupont Chemical, Wilmington, Delaware, March 6, 1984
  160. Biomechanics and Biochemistry Relationships for Connective Tissues, Harvard University, April 3 and 5, 1984
  161. Biomechanics and Biochemistry Relationships for Connective Tissues, Stanford University, April 10, 1984
  162. Influence of Interstitial Flow on the Mechanical Properties of Biological Tissues, University of California at Berkeley, April 12, 1984
  163. Influence of Interstitial Flow on the Mechanical Properties of Biological Tissues, Wayne State University, Michigan, April 25, 1984
  164. Panelist: Future Trends in Bioengineering Fifth International Conference on Engineering in Medicine and Biology, State University of New York at Buffalo, July 6, 1984

165. Finite Deformation Theory for Nonlinearly Permeable Cartilage and Other Soft Hydrated Connective Tissues, Keynote Lecture, Symposium on Frontiers in Biomechanics, University of California at San Diego, July 21, 1984
166. Biphase Rheological Properties of Articular Cartilage, Gordon Research Conference on Bioengineering and Orthopaedic Science, August 19, 1984
167. Effect of Percent Aggregation on the Flow Properties of Proteoglycan Solutions, Fourth Meeting of the European Society of Biomechanics, Davos, Switzerland, September 24, 1984
168. Moderator, Soft Tissue Mechanics, Fourth Meeting of the European Society of Biomechanics, Davos, Switzerland, September 24, 1984
169. Proteoglycan Biorheology, Muller Institute of Biomechanics, University of Bern, Switzerland, September 25, 1984
170. Structure and Function Relationship for Normal and Osteoarthritic Articular Cartilage, Harvard Medical School, November 20, 1984
171. Chairman, Knee Symposium: Compression Elements, ASME, Winter Annual Meeting, December 13, 1984
172. Effect of Percent Aggregation on Measured Biorheological Properties of Cartilage Proteoglycans in Solution, 31st Annual Meeting Orthopaedic Research Society, January 23, 1985
173. Chairman, Cartilage Mechanics II, 31st Annual Meeting Orthopaedic Research Society, January 23, 1985
174. Participant, U.S. National Committee on Biomechanics Workshop, Washington, DC, February 10-11, 1985
175. Biomechanics of Articular Cartilage, 1985 Symposium on Biomaterials, Industrial Technology Research Institute, Taiwan, February 25, 1985
176. Proteoglycan Rheology, Industrial Technology Research Institute, Taiwan, February 25, 1985
177. Biomechanics of Diarthrodial Joints, Tsukuba University, Japan, March 1, 1985
178. Recent Advances in Biomechanics of Diarthrodial Joints, Keynote Lecture, Japanese Biorheology Society, Tokyo, Japan, March 2, 1985
179. Biomechanics of Articular Cartilage and Joint Lubrication, Invited Colloquium, Shinshu Medical School, Matsumoto, Japan, March 4, 1985
180. Development of Biomechanics, Invited Colloquium, Osaka University, Japan, March 6, 1985
181. Structure and Function Relationship of Cartilage Macromolecules, Case Western Reserve University, Cleveland, April 1, 1985
182. The Structure and Function of Articular Cartilage, Harvard University, April 9, 1985
183. Current Developments in Articular Cartilage and Meniscus Research, University of California at San Diego, April 19, 1985
184. Recent Advances in Biomechanics of Osteoarthritis, Catholic University of Nijmegen, The Netherlands, July 1, 1985
185. Biomechanics of Osteoarthritis, Medicine Lariboisière-St. Louis and Pierre and Marie Curie University, Paris, France, July 11, 1985
186. Biomechanical Etiological Factors in Osteoarthritis, National Institutes of Health Workshop on Osteoarthritis, Arlie House, Virginia, July 22, 1985
187. Biomechanics of Diarthrodial Joints, Chengdu University of Science and Technology, Chengdu, Sichuan, China, October 16, 1985
188. Molecular Basis for the Swelling of Articular Cartilage, Keynote Lecture, Second National Congress on Biomechanics, People's Republic of China, Taiyuan, China, October 22, 1985
189. A Theoretical Assessment of the Ionic Component of Swelling Pressure in Articular Cartilage, ASME Winter Annual Meeting, Miami, November 18, 1985
190. Finite Deformation Biphase Analysis of the Confined Behavior of Articular Cartilage, Keynote Lecture, ASME Winter Annual Meeting, Miami, November 18, 1985
191. Biomechanics of Articular Cartilage, Invited Lecture, Mayo Clinic, Rochester, Minnesota, January 23, 1986
192. Moderator, Cartilage Repair Session, Annual Meeting of Orthopaedic Research Society, February 18, 1986
193. Variation of the Energy Dissipation and Permeability of Cartilage with Salt Concentration, Annual Meeting of Orthopaedic Research Society, February 20, 1986
194. Influence of Load Bearing on the Fluid Transport and Mechanical Properties for Articular Cartilage, Invited Keynote Lecture, XVth Symposium of European Society of Osteoarthrology, Kuopio, Finland, June, 26, 1986
195. Biomechanics of Diarthrodial Joints, Japan Society of Medical Electronics and Biological Engineering, Osaka, August, 23, 1986
196. Structure and Function Relationship of the Knee Joint Meniscus, University of Osaka, Japan, August 24, 1986
197. Biomechanics of Knee Joint Meniscus, Kyoto University, Japan, August 28, 1986

198. Co-Moderator, Standardizations in Biomechanics, Japan Society of Orthopaedic Research, Kanazawa City, August 30, 1986
199. Structure and Function Relationship of Cartilage Proteoglycans, Special Invited Lecture, Japan Society of Orthopaedic Research, Kanazawa City, August 31, 1986
200. Structure, Function and Biomechanical Assessment of Articular Cartilage, Invited Keynote Lecture, International Symposium on Degenerate Joint Disease, Kennedy Institute of Rheumatology, London, England, October 22, 1986
201. Energy Dissipation in Articular Cartilage, 1986 Advances in Bioengineering ASME, Anaheim, California, December 9, 1986
202. Orthopaedic Research at Columbia University, The Burke Rehabilitation Center, Cornell University Medical Center, November 16, 1986
203. Moderator, Cartilage Session, 33rd Annual Meeting of the Orthopaedic Research Society, San Francisco, January 19, 1987
204. Recent Development in Orthopaedic Biomechanics, Sigma Xi Lecture, University of Maryland at Baltimore, February 27, 1987
205. *In Vivo* Effects of Mechanical Loading on Diarthrodial Joints, Alza Distinguished Lecture, Biomedical Engineering Society, Washington, DC, April 1, 1987
206. Structure and Function Relationship of Cartilage Macromolecules, Pfyzer Symposium of Osteoarthritis, Athens, Greece, June 28, 1987
207. Biomechanics of Articular Cartilage, Osaka University Symposium on Joint Structures, Osaka, Japan, September 26, 1987
208. Material Properties of Normal Meniscus, 2nd Japan-USA-China Bimechanics Meeting, Osaka, Japan, September 30, 1987
209. Structure and Function Relationships of Cartilage Macromolecules, University of Tokyo, October 7, 1987
210. Bioengineering Activities at the Orthopaedic Research Laboratory of Columbia University, Shanghai Jiao Tong University, October 12, 1987
211. Biomechanics and Osteoarthritis, Syntex Laboratories, Palo Alto, California, March 2, 1988
212. Biomechanics of Articular Cartilage, Harvard University, April 28, 1988
213. Articular Cartilage Material Properties and Joint Function, Cornell Medical School, May 10, 1988
214. Assessment of Biomechanical Properties of Healing Articular Cartilage, Gordon Research Conference on Bioengineering and Orthopaedic Science, August 16, 1988
215. Recent Advances on Diarthrodial Joint and Cartilage Research, University of California at San Diego, October 10, 1988
216. Biomechanics of Diarthrodial Joints, University of California at San Diego, October 12, 1988
217. Development of Finite Element Models for Diarthrodial Joints, Computational Methods in Bioengineering ASME, November 30, 1988
218. Recent Advances in Diarthrodial Joint Biomechanics, Maurice Muller Biomechanics Institute, University of Bern, Switzerland, January 23, 1989
219. On the Development of Finite Element Models for Diarthrodial Joints, McGill University, March 8, 1989
220. Quantitation of Joint Surfaces with Stereophotogrammetry, Kennedy Institute of Rheumatology, London, April 18, 1989
221. Structure-Function Relationships for Articular Cartilage and Effects of Joint Instability and Trauma on Cartilage Function, Ciba-Geigy Symposium on Cartilage Changes during Osteoarthritis, Orlando, Florida, May 1, 1989
222. Joint Instability and Trauma on Cartilage Function, Ciba-Geigy Symposium on Cartilage Changes during Osteoarthritis, Orlando, Florida, May 1, 1989
223. Effect of Naproxen on Canine Knee Joint Cartilage, Syntex Research Conference, Laguna Beach, California, May 19, 1989
224. Second Order Statistical Network Theory for Transient Flow Behavior of Concentrated Cartilage Proteoglycan Solutions, 7th International Congress on Biorheology, Nancy, France, June 20, 1989
225. Nonlinear Transient and Steady State Shear Behavior of Cartilage Proteoglycans, 7th International Congress on Biorheology, Nancy, France, June 21, 1989
226. Diarthrodial Joint Biomechanics Research at Columbia University, Claude Bernard University of Lyon, France, June 27, 1989
227. Diarthrodial Joint Biomechanics Research at Columbia University, Rhobapharm, Basal, Switzerland, June 29, 1989
228. Bioengineering Research in Orthopaedic Surgery, Hong Kong University, Queen Mary Hospital, October 12, 1989

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229. Triphasic Theory for Swelling of Articular Cartilage, Hong Kong Polytechnic, October 13, 1989
230. Biomechanical Properties of the Meniscus, Chinese University of Hong Kong, October 14, 1989
231. Structure and Function Relationship for Articular Cartilage, Syntex Symposium on Effects of NSAIDS on Bones and Joints: New Insights, Waikoloa, Hawaii, October 20, 1989
232. Compressive Stiffness and Permeability of Intervertebral Disc Tissues: Variations with Radial Position, Region and Level, ASME Winter Annual Meeting, December 12, 1989
233. Healing of Major Articular Cartilage Defects in High Weight Bearing Regions Using Osteochondral Grafts, ASME Winter Annual Meeting, December 14, 1989
234. Recent Advances in Meniscus Biomechanics Research, University of Pittsburgh Sports Medicine Symposium, March 7, 1990
235. Development of Triphasic Theory for Swelling and Deformation Behavior of Hydrated, Charged Tissues, University of Nebraska, March 13, 1990
236. A Computer Assisted Method to Determine Contact Areas *In Situ* in Diarthrodial Joints, New York Academy of Medicine, March 19, 1990
237. Biomechanical and Biochemical Properties of Healing Articular Cartilage, NSF Tissue Engineering Workshop, Keystone, Colorado, April 6, 1990
238. Structure and Function of Cartilage and Joints, Medical College of Wisconsin, Department of Orthopaedic Surgery Grand Rounds, May 16, 1990
239. Basic Studies on the Knee Meniscus, Medical College of Wisconsin, Department of Orthopaedic Surgery Grand Rounds, May 16, 1990
240. Biomechanics of the Growth Plate, Medical College of Wisconsin, Department of Physical Medicine and Rehabilitation Grand Rounds, May 16, 1990
241. Basic Science of Osteochondral Healing, Medical College of Wisconsin, Department of Physical Medicine and Rehabilitation Grand Rounds, May 16, 1990
242. A Triphasic Theory for Swelling Properties of Hydrated Charged Soft Biological Tissues, 11th US National Congress of Applied Mechanics, Tucson, Arizona, May 22, 1990
243. Osteochondral Healing, Swiss Connective Tissue Society Meeting, June 8, 1990
244. Osteochondral Healing, Centre National de Transfusion Sanguine, Les Ulis, France, June 12, 1990
245. Osteochondral Healing, Laboratoire de Recherches Orthopédiques, Faculté de Médecine Lariboisière, Saint Louis, Paris, France, June 13, 1990
246. Moderator, Biomechanics of Diarthrodial Joints I, First World Congress of Biomechanics, University of California at San Diego, August 31, 1990
247. Cutoff Frequency for Dynamic Compression of Articular Cartilage, First World Congress of Biomechanics, University of California at San Diego, August 30, 1990
248. Effects of Naproxen Treatment on POND-Nuki Canine OA Model Cartilage, Syntex Conference on NSAIDs, Westfield, Virginia, October 6, 1990
249. A Multiphase Theory for Charged Deformable Porous Materials and Its Application to Biological Soft Tissues, International Society of Engineering Science Meeting, Santa Fe, October 23, 1990
250. Basic Science Studies on Osteochondral Healing, Ray Kroc Lectureship, University of Miami, November 8, 1990
251. Effects of NSAIDs in Normal and OA Cartilage, Syntex Laboratories Lecture, Miami, November 8, 1990
252. Structure and Function of Articular Cartilage, Harvard University, December 13, 1990
253. Stereophotogrammetric Determination of Patellofemoral Joint Contact, AAOS Symposium on New Treatment Modalities on the Patellofemoral Joint, March 9, 1991
254. Review of Meniscal Tissue Properties, The Meniscus Allograft Symposium, Annual AAOS Meeting, March 10, 1991
255. Articular Cartilage and Diarthrodial Joints as Paradigms for Hierarchical Materials and Structures, National Materials Advisory Board, NRC, Irvine, California, March 18, 1991
256. Stereophotogrammetric Determination of Diarthrodial Joint Anatomy, University of Hokaido, Japan, July 3, 1991
257. Triphasic Mechano-Electrochemical Theory for Charged Hydrated Soft Tissue, World Congress on Medical Physics and Biomedical Engineering, Kyoto, Japan, July 11, 1991
258. Articular Cartilage and Diarthrodial Joints as Paradigms for Hierarchical Materials and Structures, Kyoto University, July 12, 1991
259. Characteristics of Repair of Large Femoral Condyle Defects Using a Periosteal-Synthetic Bone Graft, World Congress on Medical Physics and Biomedical Engineering, Kyoto, Japan, July 13, 1991
260. Constitutive Theory for the Mechano-Electrochemical Properties of Articular Cartilage, Invited Keynote Lecture,

- Third USA-China-Japan Conference on Biomechanics, Georgia Institute of Technology, Atlanta, August 29, 1991
261. Determination of Glenohumeral Joint and Subacromial Joint Contact Areas Using Stereophotogrammetry, Annual Meeting of American Shoulder and Elbow Surgeons, Seattle, September 5, 1991
  262. Constitutive Theory for the Mechano-Electrochemical Properties of Articular Cartilage, Invited Keynote Lecture, Symposium on Knee, Arthritis and Cartilage Research, Institute for Orthopaedics, University of Nijmegen, The Netherlands, October 10, 1991
  263. Solid Models and Contact Areas in the Patellofemoral Joint Using Stereophotogrammetric Measurements, Symposium on Knee, Arthritis and Cartilage Research, Institute for Orthopaedics, University of Nijmegen, The Netherlands, October 10, 1991
  264. Biphasic Finite Element Modeling of Chondrocyte-Extracellular Matrix Interactions in Cartilage, Symposium on Knee, Arthritis and Cartilage Research, Institute for Orthopaedics, University of Nijmegen, The Netherlands, October 10, 1991
  265. Reminiscences of a Middle-Aged Biomechanician, Giovanni Borelli Award Lecture, American Society of Biomechanics, Tempe, Arizona, October 17, 1991
  266. Constitutive Theory for the Mechano-Electrochemical Properties of Articular Cartilage, Workshop on Biologic Basis for Micromechanical Modeling of Cartilage, Combined Meeting of the Orthopaedic Societies of USA, Japan and Canada, October 21, 1991
  267. Articular Cartilage Structure and Function Behavior, Workshop on Biology and Biomechanics of Osteoarticular Cartilage: How does it Differ From Normal Cartilage, Combined Meeting of the Orthopaedic Societies of USA, Japan and Canada, October 22, 1991
  268. Knee Joint Cartilage, NIH-AAOS Workshop on Biology and Mechanics of the Knee, Scottsdale, Arizona, November 17, 1991
  269. A Triphasic Mechano-Electrochemical Constitutive Model for Charged-Hydrated Soft Tissues, International Meeting on the Pathology of the Extracellular Matrix, Lorne, Victoria, Australia, November 26, 1991
  270. Articular Cartilage as a Paradigm for Constitutive Modeling of Biologic Materials, University of Michigan, March 25, 1992
  271. Anatomic Form and Biomechanical Properties of Articular Cartilage of the Knee Joint, University of Michigan, March 26, 1992
  272. Cell-Matrix Interactions in Articular Cartilage: A Tissue Engineering Approach. Keystone/NSF Tissue Engineering Workshop, April 9, 1992
  273. Material Properties of Articular Cartilage and Diarthrodial Joints, Harvard University, April 16, 1992
  274. Analysis of Fluid and Ion Transport Through a Porous Charged-Hydrated Biological Tissue During a Permeation Experiment. Symposium on Computational Mechanics of Porous Materials and Their Thermal Decomposition. ASME Summer Applied Mechanics Meeting, April 30, 1992
  275. Moderator, Symposium on Computational Mechanics of Porous Materials and Their Thermal Decomposition, ASME Summer Applied Mechanics Meeting, April 30, 1992
  276. Anatomic Forms of Male and Female Carpometacarpal Joints, NATO Advances in the Biomechanics of the Hand and Wrist, Brussels, Belgium, May 22, 1992
  277. Material Properties of Articular Cartilage after Anterior Cruciate Ligament Transection. Invited Lecture, 17th ESOA Meeting, Noordwijkerhout, The Netherlands, May 25, 1992
  278. Cell-Matrix Interactions in Articular Cartilage, Presidential Lecture, 7th European Society of Biomechanics, Rome, June 23, 1992
  279. Ion and Fluid Transport through a Porous-Charged Hydrated Biological Tissue, ASME-European Engineering Science and Design Analysis Meeting, Istanbul, Turkey, June 30, 1992
  280. Development of an Orthopaedic Research Laboratory: General Considerations and Case History of the New York Orthopaedic Research Laboratory, Cheng Gung Hosptial, August 14, National Taiwan University Applied Mechanics Institute, August 17, National Taiwan Medical School, August 18, 1992.
  281. Structure and Function of the Meniscus, Arthroscopy Association of the Republic of China, August 15, 1992
  282. Osteochondral Healing of Large Defects on the High Weight Bearing Areas of Knee Joints, Arthroscopy Association of the Republic of China, August 15, 1992
  283. Kinematic Analysis of the Glenohumeral Joint. American Shoulder and Elbow Surgeons, Vail, CO, September 12, 1992.
  284. Deformation of Chondrocytes within the Extracellular Matrix of Articular Cartilage. Keynote Lecture, 7th International Conference on Biomedical Engineering, December 2, 1992, Singapore.
  285. Quantitative Anatomy of Diarthrodial Joints Using Stereophotogrammetry. New Frontiers in Total Joint



- Replacement. December 5, 1992, Singapore.
286. Tissue Engineering, Hong Kong Polytechnic, December 7, 1992.
  287. Recent Developments in Diarthrodial Joint Research, Chinese University of Hong Kong, December 7, 1992
  288. Structure and Function of Articular Cartilage, Harvard University, April 22, 1993
  289. Quantitation of Residual Stresses in Articular Cartilage, Ferguson Endowed Chair Symposium, University of Pittsburgh, April 28, 1993
  290. Biomechanics of Diarthrodial Joints: A Review of Twenty Years of Progress, Biomechanics Symposium, ASME, Breckenridge, CO, June 27, 1993
  291. Advanced Orthopaedic Biomechanics, and Examples of Applications to Rehabilitation, Keynote Lecture, The Whitaker Foundation, Snowbird Utah, July 31, 1993
  292. Biomechanics of Diarthrodial Joints: A Review of Twenty Years of Progress, University of Osaka, October 12, 1993
  293. Biomechanics of Diarthrodial Joints: A Review of Twenty Years of Progress, University of Kyoto, October 15, 1993
  294. Biomechanics of Diarthrodial Joints: A Review of Twenty Years of Progress, University of Kyushu, October 18, 1993
  295. The Effect of Anterior Capsular Tightening on Shoulder Kinematics and Contact, ASES Closed Meeting, Williamsburgh, VA, October 31, 1993
  296. A Method for Quantitative 3-D Analysis of Chondrocyte Morphology using Laser Scanning Confocal Microscopy. ASME Winter Annual Meeting, New Orleans, LA, November 22, 1993
  297. Biomechanics Studies on the Intervertebral Disc, Colloquium Speaker, School of Engineering, Johns Hopkins University, January 8, 1994
  298. Triphasic theory for Charged-Hydrated Soft Tissues, Colloquium Speaker, School of Engineering, Johns Hopkins University, January 8, 1994
  299. Biomechanics Studies on the Shoulder, Grand Rounds Speaker, Department of Orthopaedic Surgery, Johns Hopkins University, January 9, 1994
  300. Biomechanical Studies on the Knee Meniscus, Steadman-Hawkins Clinic, Vail, CO, February 7, 1994
  301. Biomechanical Studies on the Shoulder, Steadman-Hawkins Clinic, Vail, CO, February 9, 1994
  302. Stability through Glenohumeral Contact -- Quantitative Studies, 7yh Panther Sports Symposium, University of Pittsburgh, PA, April 14, 1994
  303. Structure-Function Relationship for Articular Cartilage, Harvard University, April 21, 1994
  304. Stresses, Strains, Pressures and Flow Fields In Articular Cartilage and Chondrocytes. International Symposium on BMP in Honor of Marshall Urist, Johns Hopkins University, June 9, 1994.
  305. Shoulder Biomechanics and Repetitive Motion, NIH/AAOS Workshop on Repetitive Motion Disorders of the Upper Extremity, Bethesda, MD, June 20-22, 1994.
  306. The Evolution of Constitutive Modelling of Articular Cartilage: A Paradigm in the Study of Charged-Hydrated Soft-Tissues, Keynote Lecture, 2nd World Congress of Biomechanics, Amsterdam, The Netherlands, July 11, 1994.
  307. Effects on Calcium on the Swelling of Articular Cartilage, 2nd World Congress of Biomechanics, Amsterdam, The Netherlands, July 11, 1994.
  308. Stress, Strain, Pressure and Flow Fields in Articular Cartilage and Chondrocytes, 2nd World Congress of Biomechanics, Amsterdam, The Netherlands, July 12, 1994.
  309. Effect of Anterior Tightening on Shoulder Kinematics and Contact, 2nd World Congress of Biomechanics, Amsterdam, The Netherlands, July 15, 1994.
  310. Quantitative Anatomy of Diarthrodial Joints, The Hip Society, New York, September 10, 1994.
  311. Biomechanical Alterations Leading to Osteoarthritis, 20th Symposium of the European Society of Osteoarthrology, Bari, Italy, September 30, 1994.
  312. Computational Models for Diarthrodial Joints. Application of High Performance Computing in Engineering, Pittsburgh Supercomputer Center, October 21-22, 1994.
  313. Biomechanics of Diarthrodial Joints. Symposium on Orthopaedics Biomechanics and Clinical Application, Inaugural Meeting of the Chinese Speaking Orthopaedic Association, Hong Kong, November 11, 1994
  314. On the Development of Biomedical Engineering as a Discipline. Symposium on Interdisciplinary Research and Development, Hong Kong Polytechnic University, November 14, 1994.
  315. Effect of Glenohumeral Congruence on Joint Articulation. First Academic Congress of the Asian Shoulder Association, Taipei, Taiwan, November 18, 1994.
  316. Tensile Properties of the Inferior Glenohumeral Ligaments. First Academic Congress of the Asian Shoulder

- Association, Taipei, Taiwan, November 18, 1994.
317. The Evolution of Constitutive Modelling of Articular Cartilage: A Paradigm in the Study of Charged-Hydrated Soft-Tissues. Invited Colloquium, University of Minnesota, MN, November 29, 1994.
  318. Structure and Function of Articular Cartilage, Steadman-Hawkins Orthopaedic Clinic, Vail, Colorado, January 31, 1995.
  319. New Results in Knee Biomechanics, Steadman-Hawkins Orthopaedic Clinic, Vail, Colorado, February 1, 1995.
  320. Advances in Cartilage Research and the Etiology of Arthritis, International Congress on Advances in Biomechanics, Cologne, Germany, March 4, 1995.
  321. Analysis of Chondrocyte Deformation and Confocal Microscopy Study, Department of Anatomy, Ludwig-Maximilians-Universität Munich, Germany, March 6, 1995.
  322. Biomechanical Properties of Intervertebral Disc Properties, Department of Orthopaedic Surgery, Miami University Medical School, Miami, FL, April 6, 1995.
  323. Computer Aided Surgical Planning in Orthopaedics, Department of Biomedical Engineering, Miami University, Miami, FL, April 7, 1995.
  324. Structure and Function of Articular Cartilage, Alza Corporation, Stanford, California, April 13, 1995.
  325. Mechano-Signal Transduction in Articular Cartilage, Alza Corporation, Stanford, California, April 13, 1995.
  326. Structure and Function of Articular Cartilage, Department of Biology, Harvard University, April 20, 1995.
  327. A Review of a Thirty-Year History of Diarthrodial Joint Biomechanics, Tutorial, 4th China-Japan-USA-Singapore Biomechanics Conference, Taiyuan, China, May 22, 1995.
  328. Anatomy of the Human Retropatellar Articular Cartilage Surface: A Study of Curvature Properties, International Knee Society Congress, Hong Kong, May 31, 1995.
  329. Chondrocyte Cytoskeleton Contributes to the Mechanical Properties of Bovine Growth Plates, 2nd International Conference on Cellular Engineering, University of California, San Diego, August 20, 1995.
  330. Biomechanical Factors in the Etiology of Osteoarthritis, Symposium on Osteoarthritis, North Shore University Hospital, September 21, 1995.
  331. Mechanics and Biology of Chondrocytes, University of Calgary Medical School, Department of Orthopaedic Surgery, October 12, 1995.
  332. New Results in Knee Biomechanics Research, Human Performance Laboratory, University of Calgary, October 13, 1995.
  333. Soft Tissue Mechanics Session, Moderator, 2nd Combined Mtg of ORS, San Diego, Ca, November 8, 1995.
  334. Measurement of Streaming Potential of Bovine Articular and Nasal Cartilage in 1-D Permeation Experiments, Advances in Bioengineering, ASME, San Francisco, November 13, 1995.
  335. An Analytical Model for Membrane Stretch and Chondrocyte Volume Change During Tissue Compression: A Biphasic Inclusion Model, Advances in Bioengineering, ASME, November 14, 1995.
  336. Foundations of Biomechanics I & III, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 8 and 9, 1995.
  337. Structure and Function of Articular Cartilage, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 8, 1995.
  338. Structure and Function of Articular Cartilage, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 8, 1995.
  339. Structure and Function of Knee Meniscus, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 8, 1995.
  340. Biomechanics of Osteoarthritis, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 9, 1995.
  341. Friction, Lubrication and Wear of Diarthrodial Joints, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 9, 1995.
  342. Shoulder Kinematics and Static Stabilizers, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 9, 1995.
  343. The Intervertebral Disc, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 9, 1995.
  344. Foundations of Biomechanics, Inaugural Australian Orthopaedic Consultants Biomechanics Course, Sydney, Australia, December 10, 1995.
  345. Structure and Function of Knee Meniscus, Australian Orthopaedic Registrars Biomechanics Course, Sydney, Australia, December 10, 1995.
  346. New Results on the Biomechanics of the Knee, Inaugural Australian Orthopaedic Consultants Biomechanics Course, Sydney, Australia, December 10, 1995.

347. Friction, Lubrication and Wear of Diarthrodial Joints, Inaugural Australian Orthopaedic Consultants Biomechanics Course, Sydney, Australia, December 10, 1995.
348. New Results in Knee Biomechanics, Steadman-Hawkins Orthopaedic Clinic, Vail, Colorado, January 31, 1996.
349. Biotribology, Steadman-Hawkins Orthopaedic Clinic, Vail, Colorado, February 1, 1996.
350. Fundamentals of Articular Cartilage Biomechanics, Steadman-Hawkins Orthopaedic Clinic, Vail, Colorado, February 2, 1996.
351. Biomechanical Changes in Cartilage following Anterior Cruciate Ligament Transection in the Canine OA Model. Kroc Foundation Lecture on Arthritis, University of Miami, April 11, 1996.
352. Structure-Function Relationships in Articular Cartilage, Harvard University, April 23, 1996.
353. Cartilage Biomechanics and Metabolism. Conference on Interface of Biomechanics and Cell Biology in Orthopaedics, Johns Hopkins University, June 6, 1996.
354. Nonlinear Electromechanical Transduction Phenomena in Charged-Hydrated Soft Biologic Tissues: Theory and Experiment, ASME Mechanics & Materials Conference, Johns Hopkins University, June 12, 1996.
355. Articular Cartilage: A Paradigm for Hierarchically Structured and Multi-Functional Biologic Tissue, Defense Science Research Council, DARPA, La Jolla, California, July 10, 1996.
356. What principles in biomechanics do we need to know to develop successful articular Cartilage replacements, Gordon Research Conference for Bioengineering and Orthopaedic Science, August, 1996.
357. Cartilage Biomechanics and Chondrocyte Metabolic Activities: Cell-ECM Interactions, Penn State University, September 13, 1996
358. New Results in Knee Biomechanics Research, Department of Orthopaedic Surgery Grand Rounds, University of Virginia, September 19, 1996.
359. Structure-Function Relationships for Articular Cartilage, Visiting Professor, Department of Orthopaedic Surgery, University of Virginia, September 20, 1996.
360. Cartilage Biomechanics and Chondrocyte Metabolic Activities: Cell-ECM Interactions, Department of Biomedical Engineering Colloquium, University of Virginia, September 20, 1996.
361. Hierarchically Structured Biologic Tissues as Paradigms for Understanding Complex Material Behaviors, Paul M. Chung Distinguished Lecture Series, University of Illinois, Chicago, October 25, 1996.
362. Hierarchically Structured Biologic Tissues as Paradigms for Understanding Complex Material Behaviors: A Perspective from the History of Science, Stichting World Biomechanics Conference, Amsterdam, The Netherlands, November 8, 1996.
363. Shear Mechanical Behavior of the Human Lumbar Anulus Fibrosus and the Effects of Degeneration, 1996 IMECE & ASME Conference, Atlanta, GA, November 22, 1996.
364. New Results in Knee Biomechanics Research, Steadman-Hawkins Sports Medicine Foundation, January 28, 1997, Vail, Colorado
365. Structure-Function Relationships in Articular Cartilage, Steadman-Hawkins Sports Medicine Foundation, January 29, 1997, Vail, Colorado
366. Healing of Large Osteochondral Defects in High-Weight Bearing Areas, Cartilage-Transplantation Study Group, AAOS, February 15, 1997, San Francisco, CA
367. Structure and Function of Articular Cartilage, Harvard University, April 22, 1997, Boston, MA.
368. Interstitial Fluid Flow through Nonlinear Charged-Hydrated Soft Tissues, University of California, San Diego, May 15, 1997.
369. Regional and Directional Tensile Properties of Bovine Glenohumeral Cartilage, ASME Bioengineering Conference, Bend, Oregon, June 15, 1997
370. Nonlinear Electromechanical Transduction in Biologic Tissues, Euromech Colloquium on Porous Media, Essen, Germany, June 23, 1997.
371. Analysis of Transient Intracellular Ion-Concentration and Electrical Potential Changes Associated with Cell Swelling, Centennial Celebration of Japan Society of Mechanical Engineers, Tokyo, July 19, 1997.
372. Hydraulic Permeability of Human Anulus Fibrosus Depends on Direction and Degeneration. World Cong on Medical Physics and Biomedical Engineering, Nice France, September 19, 1997.
373. Transient Swelling and Electrical Responses of Cells Subject to Osmotic Shock Loading. 3rd Inter Cellular Engineering Conference, San Remo, Italy, September 22, 1997.
374. Inhomogeneity of Aggregate Modulus Affects Cartilage Compressive Stress-Relaxation Behavior, Annual Biomedical Engineering Conference, San Diego, October 3, 1997.
375. A Triphasic Model for Charged-Hydrated Soft Biologic Tissues, Hong Kong Polytechnic University, October 16, 1997.
376. Recent Advances in Knee Biomechanics Research, Hong Kong Polytechnic University, October 17, 1997.

377. Adhesion of the Patellar and Quadriceps Tendons: Mathematical Model Simulations, International Mechanical Engineering Conference and Exposition, Dallas, Texas, November 20, 1997
378. Structure and Function of Articular Cartilage, as a Paradigm for Hierarchical Biologic Structure, Oak Ridge National Laboratory, Tennessee, December 10, 1997
379. New Results in Knee Biomechanics Research, Steadman-Hawkins Sports Medicine Foundation, January 27, 1998, Vail, Colorado
380. Structure-Function Relationships in Articular Cartilage, Steadman-Hawkins Sports Medicine Foundation, January 29, 1998, Vail, Colorado
381. Friction, Lubrication and Wear of Diarthrodial Joints, Steadman-Hawkins Sports Medicine Foundation, January 30, 1998, Vail, Colorado
382. Smorgasbord of Advances in Biomechanics: From Knee Mechanics to Cellular Engineering, The University of Memphis, April 3, 1998
383. Recent Advances in Biomechanics: From Knee Function to Cellular Mechanics. The University of Texas, Austin, April 9, 1998.
384. Structure-Function Relationships for Articular Cartilage, Harvard University, April 23, 1998
385. Constitutive Modeling of Biologic Tissues and Cells, Georgia Institute of Technology, May 7, 1998
386. New Knowledge on Knee Mechanics, Department of Orthopaedic Surgery, University of Pennsylvania, June 18, 1998.
387. Structure and Function of Articular Cartilage, Plenary Lecture, International Society of Magnetic Resonance in Medicine, Philadelphia, PA, June 19, 1998.
388. Cell Swelling: Theory and Experiment, US National Congress on Applied Mechanics, Gainesville, FL, June 22, 1998.
389. Constitutive Modeling of Biologic Tissues and Cells, University of Colorado, Boulder, October 29, 1998.
390. New Results on Knee Biomechanics, Colorado State University, Fort Collins, October 30, 1998.
391. Effects of Fixed Charge Density on the Stress-relaxation Behavior of Hydrated Soft Tissues in Confined Compression. ASME Advances in Bioengineering, November 20, 1998.
392. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. Emerging Technologies in Biomedicine, University of Tennessee-Oak Ridge, December 3, 1998.
393. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. Steadman-Hawkins Sports Medicine Foundation, Vail, Colorado, January 26, 1999.
394. Structure-Function of Articular Cartilage. Steadman-Hawkins Sports Medicine Foundation, Vail, Colorado, January 27, 1999.
395. Friction, Lubrication and Wear of Diarthrodial Joints, Steadman-Hawkins Sports Medicine Foundation, Vail, Colorado, January 28, 1999.
396. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. University of Southern California, February 8, 1999.
397. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. Virginia Commonwealth University, Richmond, Va, February 23, 1999.
398. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. Provost's Foundation Lecture, New Jersey Institute of Technology, Newark, NJ, April 7, 1999.
399. New Understanding on Knee Function, and Computer-Aided-Surgical Planning, Grand Rounds Lecture, Mt. Sinai Hospital Medical Center, New York, NY, September 29, 1999.
400. Constitutive Modeling of Articular Cartilage, Princeton University, Princeton, NJ, October 13, 1999.
401. New Understanding on Knee Function, and Computer-Aided-Surgical Planning. University of California, Irvine, February 10, 2000.
402. Biomechanics of the Knee with Emphasis on Computer-Aided-Surgical Planning, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, February 28, 2000
403. Structure-Function Relationships for Articular Cartilage, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, March 3, 2000
404. New Knowledge on the Biomechanics of the Knee with Emphasis on Computer-Aided-Surgical Planning, Oklahoma University, Norman, Oklahoma, March 28, 2000
405. New Knowledge on the Biomechanics of the Knee with Emphasis on Computer-Aided-Surgical Planning, Southern Methodist University, Dallas, Texas, March 29, 2000
406. Constitutive Modeling of Charged-Hydrated Soft Tissues: The Articular Cartilage Paradigm, Southwest Research Institute, Dallas, Texas, March 30, 2000
407. Constitutive Modeling of Charged-Hydrated Soft Tissues: The Articular Cartilage Paradigm, AC Suhren, Jr Lecture, University, Louisiana, March 31, 2000 Structure-Function Relationships for Normal and

- Osteoarthritic Cartilage Croucher Advanced Studies Institute, Hong Kong, April 13, 2000
408. Functional Tissue Engineering and Tissue Engineering: A Phylogenic Development of Mechanics and Material Science, NSF/NIH Workshop on Functional Tissue Engineering, Tampa, FL, September 15, 2000
  409. Biomedical Engineering at Columbia University: Past, Present and Future, Inaugural Symposium, October 29, 2000
  410. Biomechanical Properties of Normal and Osteoarthritic Cartilage, Assoc Bone Joint Surgeons, Tampa, FL, November 10, 2000
  411. Biomechanics of the Knee with Emphasis on Computer-Aided-Surgical Planning, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, January 25, 2001
  412. Structure-Function Relationships for Articular Cartilage, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, January 26, 2001
  413. Friction Lubrication and Wear of Diarthrodial Joints, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, January 30, 2001
  414. A Tribute to Professor Shu Chien: Scholar, Leader and Gentleman. UCSD, June 23, 2001
  415. Comparison of Isotropic and Transversely Isotropic Material Properties from Confined Compression and Indentation. Bioengineering Conference, Snowbird, UT, June 30, 2001
  416. A Tribute to Professor Savio Woo: Like a Bridge that Spans Time and Distance, a Supportive Friendship is a Bond to be Celebrated. July 14, 2001
  417. Importance of Strain-Dependent Permeability on the Normal Physiology of Articular Cartilage under High Loading, Steadman-Hawkins Sports Medicine Center, Vail, Colorado, January 30, 2002
  418. The Next Big New Thing: Functional Tissue Engineering for Articular Cartilage. Visiting Professorship, Department of Orthopaedic Surgery, University of Pittsburgh, June 3, 2002
  419. Role of Biomechanics on Functional Tissue Engineering, University of Pennsylvania Bioengineering Colloquium, October 17, 2002
  420. Invited Moderator for Basic Science Research on the Shoulder, American Shoulder and Elbow Surgeons, Pebble Beach, California, November 1, 2002
  421. Kroc Foundation Lecturer, The Next Big New Thing: Functional Tissue Engineering, University of Miami, November 7&8, 2002
  422. Keynote Lecturer: Role of Biomechanics on Functional Tissue Engineering, First Congress of Chinese Biomechanics, Taipei, December 11, 2002
  423. Structure and Function of Articular Cartilage, Steadman-Hawkins Sports Medicine Foundaton, January 23, 2003
  424. Role of Biomechanics on Functional Tissue Engineering, Steadman-Hawkins Sports Medicine Foundaton, January 23, 2003
  425. Colloquium, Life Sciences Consortium's Colloquium Series, Functional Tissue Engineering, Pennsylvania State University, March 4, 2003
  426. Bioengineering Studies on Knee Mechanics, University of Virginia, June 2, 2003
  427. Keynote Lecture, 2<sup>nd</sup> National Science Education Seminar, for the Commoration of Her Royal Highness, Crowned Princess Sirindhorn 48<sup>th</sup> Birthday and the 60<sup>th</sup> Anniversary of Kasetsart University, September 5, 2003, Thailand
  428. Lessons from History of Science and Life, & Implications for Science Education in the 21<sup>st</sup> Century, Hong Kong Polytechnic University, September 11, 2003
  429. Plenary Lecture, Biomechanics and Disease Mechanism, World Congress on OsteoArthritis, Berlin, Germany, October 12, 2003
  430. Invited Lecture, ARO Symposium on Mechanics and Chemistry of Biosystems, Beckman Center, UC Irvine, February 10, 2004
  431. Invited Lecture, Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis, National Meeting of the Natonal Academy of Engineering, Beckman Center, UC Irvine, February 12, 2004
  432. Invited Lecture, An Analytical Solution for the Deformation and Flow of an Electrically-Charged Biological Tissue, Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, May 22, 2004
  433. Invited Lecture, Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis, University of Washington, Seattle, June 3, 2004
  434. Zhu Kezhen Memorial Lecture, Functional Tissue Engineering, Tissue Engineering Center, Zhejiang University, July 5, 2004
  435. Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis, Sichuan University, China, July 12, 2004
  436. Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis, Beihang University, China, July 16, 2004

437. Functional Tissue Engineering for Articular Cartilage: The Next Big Thing, Steadman-Hawkins Sports Medicine Foundation, Vail, Colorado, January 24, 2005
438. Honorary Lecture, How to Succeed in America as a Chinese Research, ICHTS, February 20, 2005, Washington DC
439. Biomechanics Articular Cartilage, Brown University Department of Orthopaedics, Providence, RI, March 23, 2005
440. Rigorous Engineering Analysis of Human Joint Function and Etiology of Osteoarthritis, Brown University, Department of Orthopaedics, Providence, RI, March 23, 2005
441. Keynote Lecturer, U.S. National Science Foundation Sino-American Multi-Sited Biomedical Engineering Symposium, "Influence of Tension-Compression Nonlinearity on the Mechano-Electrochemical Environment of Chondrocytes in Cartilage Explants under Unconfined Compression", Chinese Academy of Sciences, Beijing, China, July 15, 2004
442. Keynote Lecturer: Animal Joint Lubrication: Nature's "Fail-Safe" Mechanisms and What Happens when it Fails, 3<sup>rd</sup> World Congress on Tribology, Washington DC, September 14 & 15, 2005
443. Nature's Fail Safe Lubrication Mechanisms in Animal Joints, and What Happens when they Fail, Hong Kong Polytechnic University, September 21, 2005
444. Mechano-signal Transduction: The Next Big Thing in Osteoarthritis Studies, Beijing University of Aeronautics and Astronautics, September 23, 2005
445. Plenary Lecturer: The Origin of Residual Stress and Curling Behavior of Biological Tissues: Physiological and Medical Implications. 30<sup>th</sup> International Conference on Computational and Experimental Engineering and Sciences, IIT Chennai, India, December 1, 2005
446. Honorary Lecturer: Biomedical Engineering for the Year 2020: What Do We See? A New Discipline for the Twenty First Century, National Science and Technology Development Agency, Symposium on Technology Transfer, Bangkok, Thailand, December 16, 2005
447. Plenary Lecturer: Plenary Lecturer: The Origin of Residual Stress and Curling Behavior of Biological Tissues: Physiological and Medical Implications. First U.S. - Thailand Biomedical Engineering Symposium, Bangkok, Thailand, December 14, 2005
448. Honorary Lecturer: Biomedical Engineering for the Year 2020: What Do We See? A New Discipline for the Twenty First Century, First U.S. - Thailand Biomedical Engineering Symposium, Bangkok, Thailand, December 12, 2005
449. A Historical Perspective of Tissue Engineering: Tales from the Journey of Tissue Engineering to Functional Tissue Engineering, McGowan Institute of Regenerative Medicine, and Musculoskeletal Research Center, University of Pittsburgh, PA, February 23, 2006
450. Structure and Function of Normal and OA Articular Cartilage, 53<sup>rd</sup> Annual Meeting of American College of Sports Medicine, Denver, CO Keynote Lecture, June 2, 2006
451. Determination Of Tension-Compression Nonlinear Properties And Fixed Charge Density Of Articular Cartilage Using A Triphasic, Conewise Linear Elastic Model, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, Podium, July 31 – August 5, 2006.
452. Triphasic Podium, Indentation of Articular Cartilage: The Simultaneous Determination of both Mechanical Properties and Fixed Charge Density, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, July 31 – August 5, 2006.
453. An Exact Solution for Charged-Hydrated Biological Tissues under Unconfined Compression: The Triphasic Paradigm, 5<sup>th</sup> World Congress on Biomechanics, Munich, Germany, Podium, July 31 – August 5, 2006.
454. Rigorous Engineering Analysis of Normal and OA Diarthrodial Joints, Institute of Anatomy and Musculoskeletal Research, Paracelsus Private Medical University Salzburg, Austria, August 5, 2006
455. Functional Tissue Engineering – The Articular Cartilage Paradigm, Keynote Lecture, 2006 IEEE EMB Conference, New York, NY, August 31, 2006
456. Functional Tissue Engineering -- The Cartilage Paradigm: The Role of Biomechanics in Cartilage Tissue Engineering, Biot Heritage Lecture, Columbia University, November 16, 2006
457. Hunter Distinguished Scientist Lecture, Molecular and Cellular Basis for Cartilage Functional Tissue Engineering—Role of Biomechanics, Biomedical Engineering Department, Clemson University, April 5, 2007
458. Distinguished Lecturer in Biomechanical Engineering, Molecular and Cellular Biomechanics of Articular Cartilage, Stanford University, June 4-5, 2007
459. Biomechanics of Normal and Osteoarthritic Cartilage: Theory and Experiment, FDA, July 12, 2007
460. On the State of the Biomedical Engineering Department at Columbia University, Hong Kong University, October 5, 2007
461. On the State of Biomedical Engineering at Columbia University, Beihang University, , Beijing, China, October 10, 2008

462. Functional Tissue Engineering of Articular Cartilage, Tsinghua, Beijing, China, October 11, 2007
463. Functional Tissue Engineering of Articular Cartilage, Shanghai Jiao Tung University, Shanghai, China, October 23, 2007
464. Biomechanics of Normal and Osteoarthritic Cartilage: Steadman-Hawkins Sports Medicine Foundation, March 17, 2008
465. From Ideas and Engineering Genius: Major Advances over the 20<sup>th</sup> & 21<sup>st</sup> Centuries in Biomechanics, Plenary Lecture, International Congress for Osteoarthritis Research Society, Rome, Italy, September 18, 2008
466. Distinguished Overseas Chinese Scholar's Lecture, Cartilage and Osteoarthritis: Biomechanics and Cellular Signal Transduction, Shanghai Jiao Tung University, November 16, 2011
467. Keynote Lecturer, 3<sup>rd</sup> Suzhou International Clinic Forum, Soochow University, November 5, 2011
468. Distinguished Expatriate Scholar Lecturer: Necessary Elements for Creating a Paradigm Shift, but are they Sufficient? Historical and Successful Impactful Examples from Biomedical Engineering." The Chinese University of Hong Kong, November 9, 2012
- 469-70 Short Course on Biomechanics of Articular Cartilage and Diarthrodial Joints, Center for Musculoskeletal Research Institute and Institute of Engineering in Medicine & The Cartilage Tissue Engineering Laboratory, Principal Lecturer: i) Biomechanics of Normal and Osteoarthritic Articular Cartilage (2/13/13); ii) Knee Biomechanics and Computer-Aided Surgical Planning (2/20/13); iii) Biotribology—Friction Lubrication and Wear of Articular Cartilage in Diarthrodial Joints 2/20/13), UCSD.

## **PhD Students and Fellows At Columbia**

1. Kyriacos A. Athanasiou, 1989; Endowed Chair Professor, Rice University
2. Gerard A. Ateshian, 1991; Professor, Columbia University
3. Louis J. Soslowsky, 1991; Professor, University of Pennsylvania
4. Farshid Guilak, RPI '86; Columbia PhD '92; Endowed Chair Professor, Duke University
5. Lori A. Setton, 1993; Professor, Duke University
6. Boaz Cohen, 1994; Rafael, Israel
7. Weiyong Gu, 1995; Professor, University of Miami
8. Nathaniel N. Bachrach, 1996; Organogenesis
9. Rajeev Kelkar, 1996; Exponent, Palo Alto, California
10. James C. Iatridis, 1997; Assistant Professor, University of Vermont
11. S. Daniel Kwak, 1997; Technical Staff, Exponent
12. Liangfeng Xu, 1998; Manager, Nokia, Dallas, Texas
13. Zohara A. Cohen, 2000, Program Manager, NIH
14. Daniel D.N. Sun, 2000, VP of Citigroup, Wall Street
15. Charles C.Y. Huang, 2000, Assistant Professor, University of Miami
16. Christopher C.B. Wang, 2002, VP and Associate, American Express
17. Vincent M. Wang, 2002, Assistant Professor, Rush-Presbyterian Hospital and Rush University
18. Matthew Koff, 2003, Research Associate, Mayo Clinic
19. Morakot Likhitpanichkul, 2006, Instructor, Chiang Mai University, Thailand
20. Lux Xin Lu, 2006, Postdoc, Bone Bioengineering Lab, Columbia
21. Leo Qi Wan, 2006, Postdoc, Biominmetc Lab, Columbia

## **At Rensselaer Polytechnic Institute**

1. Mario Rivera, 1972; Union College
2. Peter A. Torzilli, 1976; Professor, Hospital for Special Surgery, Cornell University
3. Joseph M. Mansour, 1977; Professor, Case Western University
4. Michael J. Askew, 1978; Professor, University of Akron
5. Steve S.C. Kuei, 1979; University of California, San Diego
6. Vladimir Roth, 1980; Technical Staff, Firestone Research, Dayton, Ohio
7. Michael K. Kwan, 1982; University of California, San Diego and Organogenesis
8. Elizabeth R. Myers, 1984; Harvard Medical School, and Duke Foundation
9. Wenbo Zhu, 1988; VP, Analyst, Wall Street
10. Jiashi Hou, 1989; Old Dominion University

## **MS Students**

1. Mary Beth Schmidt, 1986; Johnson & Johnson, RPI MS '87; PhD '90
2. Mary C. Gibbs; 1986; MD, Private Practice, Melbourne, Florida
3. James Gallo, 1989
4. James J. Kim, 1996
5. Hrvoje Roglic 1997-1998; Canada

6. Chanbin Wang, 1997-1999

## **Fellows and Postdocs**

1. Cecil A. Armstrong, PhD, 1977-1981, Professor, Queens University, Belfast
2. Arthur F.T. Mak, PhD, 1979-1983, VP for Academic Affairs, Hong Kong Polytechnic University
3. Tsuni Takei, MD, 1981-1983; Private Practice, Matsumoto, Japan
4. Shaw Akizuki, MD, 1982-1984; President of Negano Hospital, Japan
5. Christopher S. Proctor, MD, 1986; Private Practice, San Barbara
6. Mark I. Froimson, MD, 1987; Cleveland Clinic
7. Barbara Best, PhD, 1987-1989; Unknown
8. Donald C. Fithian, MD, Attending, 1987; Scripps Hospital, La Jolla, California
9. Jonathan B. Ticker, MD, 1989; Private Practice, Long Island
10. Roger G. Pollock, MD, 1990; Columbia University and Private Practice, New Jersey
11. Jerald R. Zimmerman, 1990; Private Practice, New Jersey
12. Kenneth Chern, MD, 1991; Private Practice, South Carolina
13. John M. Owens, MD, 1991; Private Practice, New Jersey
14. David Skaggs, MD, 1992; University of Southern California
15. John W. Ark, MD, 1992; Private Practice
16. Peter M. Newton, MD, 1992-1994; Hollywood, California
17. William H. Warden, MD, 1993; Private Practice, Orange County, California
18. Hal Tohyams, MD, 1994; Associate Professor, Hokaido University, Japan
19. Sohei Ebara, MD, 1993-1995; Associate Professor, Matsumoto, Japan
20. Clark T. Hung, Ph.D., 1995; Associate Professor, BME Department, Columbia University
21. Emrr R. Acaroglu, MD, 1995; Professor, Ankara, Turkey
22. Christopher S. Ahmad, MD, 1995; Assistant Professor, Columbia University
23. William W. Colman, MD, 1994-1996; Private Practice, Amherst, Mass
24. Nathaniel P. Cohen, MD, 1996; Private Practice
25. Leendert Blankevoort, PhD, 1996, Associate Professor, University of Amsterdam, The Netherlands
26. Takei Kitano, MD, 1997; Assistant Professor, Osaka City University Hospital
27. Xiaogong Mao, MD, North Shore University Hospital, 1996-1998
28. Michael S. Roh, MD, 1998, Private Practice
29. David Joseph, MD, 1998, Assistant Professor, Harvard Medical School
30. Michael T. Sugalski, MD, 1998
31. Obinwanne Ugwonali, MD, 1999
32. Amy A. Abbott, MD, 2000