

CURRICULUM VITAE

NAME: Paul Ducheyne

OFFICE: Department of Bioengineering
University of Pennsylvania
240 Skirkanich Hall
21 South 33rd Street
Philadelphia, PA 19104-6321
Direct Dial: (215) 898-1521
Fax: (215) 573-2071
E-mail: ducheyne@seas.upenn.edu

EDUCATION:

1967 Secondary school: Latin-mathematics humanities, Ostend, Belgium, primus perpetuus

1972 Master of Science, Materials Science and Engineering, Katholieke Universiteit Leuven, Belgium - Graduated with great distinction

1976 Doctor's degree, Materials Science, Katholieke Universiteit Leuven, Belgium
Thesis: "Metallic orthopaedic implants with a porous coating"

POSITION – ACADEMIC

1991- Professor of Bioengineering - University of Pennsylvania, Philadelphia
1991- Professor of Orthopaedic Surgery Research, University of Pennsylvania, Philadelphia
1997- Director, Center for Bioactive Materials and Tissue Engineering, University of Pennsylvania, Philadelphia

2004 - 2005 Professor of Biomaterials in Dentistry, University of Pennsylvania, Philadelphia
2007 - 2010 Special Guest Professor, Department of Mechanical Engineering, University of Leuven, Belgium

POSITION – CORPORATE

2013 - XeroThera, Inc, Philadelphia
Founder

POSITIONS HELD - ACADEMIC

1976-1977 Postdoctoral Research Fellow, University of Florida, Gainesville, FL., Preceptor: Dr. L.L. Hench.

1977-1979 "Aangesteld navorser N.F.W.O." (Research affiliate with the National Science Foundation, Belgium - delegated at the Katholieke Universiteit Leuven, Belgium)

1979-1983 "Bevoegd verklaard navorser" N.F.W.O.

1979-1983 Lecturer, Katholieke Universiteit Leuven, Belgium

1983-1991 Associate Professor of Bioengineering, University of Pennsylvania, Philadelphia

1983-1991 Associate Professor of Orthopaedic Surgery Research, University of Pennsylvania, Philadelphia

1984-1987 Associate Professor of Materials Science, University of Pennsylvania, Philadelphia

1991-1994 Chair, Graduate Group in Bioengineering

POSITIONS HELD - CORPORATE

1992 - 2003 Orthovita (NASDAQ: VITA), Malvern, PA
Founder (1992) and President (1992-1993)
Chairman, Board of Directors (1993 -1999)
Member, Board of Directors (1999 -2003)

2000 - 2015 Gentis, Inc, Philadelphia
Founder, President and C.E.O. (2000 – 2003) (Full-time leave of absence 2001-2002)
Chairman, Board of Directors (2000 - 2013)
Member, Board of Directors (2000 -)

HONORS/DISTINCTIONS:

NIH International Postdoctoral Fellowship (1976)
CRB Honorary Fellow of the Belgian-American Educational Foundation (1976)
Chairman, 4th European Conference on Biomaterials, Leuven, Belgium (1983)
Chairman, Engineering Foundation Conference on Bioceramics, Santa Barbara, CA (1986)
Vice President, 1st Intern. Symposium on Bioceramics, Kyoto (1988)
Chairman, 6th International Symposium, Ceramics in Medicine, Philadelphia, November (1993)
President, 10th International Conference, “Ceramics, cells and tissues” Faenza, Italy, May 2006
Editorial Board Positions: see page 9
Invited Professorships: see page 11 (this includes the first Nanyang Visiting Professorship at the Nanyang Institute of Technology, Singapore, the 20th Annual Skinner Lecture at Northwestern University, professorships at the Technion, Haifa, Israel, the University of Modena, Italy, the University of Florida (the institution of the postdoctoral training), ...
Keynote Presentations and Other Invitations: see page 11
Front cover photograph, J. Mater. Sci., February 1982 (from paper number 21)
Front cover photograph, J. Biomed. Mater. Res.:
February 1990 (from paper number 43); November 1990 (from paper number 50); January 1992 (from paper number 59); March 1995 (from paper number 87); February 2000 (from paper 123).
Society for Biomaterials: Council member, 1990-1991
 Member-at-Large, 1991-1992
 President-Elect, 1993-1994
 President, 1994-1995
 Member, Board of Directors, 1991-1992 and 1993-1997
 Member, President’s Advisory Council, 1997-
International Society for Ceramics in Medicine,
 President (1993)
 Member, Board of Directors (1997 -)
Master Gold Medal, American Academy of Implant Prosthodontics, presented on October 1, 1994
Fellow, American Institute of Medical and Biological Engineering (1995)
Fellow, Biomaterials Science and Engineering, International Association of Biomaterials Societies (1996)
Fellow, American Association for the Advancement of Science (1999)
Founders Award, Eastern Orthopedic Association, August 2007, paper entitled “Sol-gel delivered vancomycin prevents periprosthetic infection”, Antoci V, Radin S, Parvizi J, Ducheyne P.
C. William Hall Award, Society for Biomaterials (2008)
Honorary Professor, Sichuan University, Chengdu, China (2015)
Founders Award (“for long-term, landmark contributions”), Society for Biomaterials (2015)
Inaugural Bioceramics Pioneer Award (“for outstanding lifetime achievements”), International Society for Ceramics in Medicine (2016)

MEMBERSHIPS IN SCIENTIFIC AND PROFESSIONAL SOCIETIES (°: past)

Society for Biomaterials, U.S.A.
Orthopaedic Research Society, USA
American Institute for Medical and Biological Engineering
European Society for Biomaterials°
European Society Biomechanics°
KVIV: Belgian Engineering Society°
Vlaamse Leergangen, Leuven°
Alumnus Universitaire Stichting, Belgium°
American Ceramic Society°
Materials Research Society°
International Congress of Oral Implantology°
Tissue Engineering Society°

RESEARCH EXPERIENCE AND DIRECTION:

Biomaterials, Tissue Engineering and Controlled Release. In vitro synthesis of musculoskeletal tissues, especially bone tissue; augmentation of nucleus pulposus tissue, controlled release of antibiotics, pain mediation and growth factors and effect of material selection. Bioactive ceramics, including hydroxyapatite, bioactive glass and bioactive composites. Porous metals, especially titanium and its alloys: surface analysis, biocompatibility and electrochemical properties, including fretting corrosion resistance. Materials engineering, mechanical properties, design and stress analysis. Orthopaedic and dental applications. Implant retrieval and analysis.

TEACHING EXPERIENCE:

Katholieke Universiteit Leuven

Introduction to Biomaterials (graduate level course)

University of Pennsylvania

BE 100	Introduction to Bioengineering
BE 209	Bioengineering Laboratory
BE 302	Structure Property Relations in Biomaterials
BE 363	Materials and the Biological Environment
BE 309	Bioengineering Laboratory
BE 463°	Design and Selection of Biomaterials
BE 464	Biomechanics
BE 512	Introduction to Biomaterials
BE 553	Tissue Engineering
BE 602/502/402	From Lab Bench to Market Place
BE 655	Advanced Topics in Biomaterials

(°) Both in 1985 and 1986, one of the projects of this course was awarded the best undergraduate student's paper award by the *Delaware Valley Society of Engineers*

GRANT SUPPORT:

Katholieke Universiteit Leuven, past

- National Foundation for Medical Research, \$12,000 annually, October 1974, 9 years, Experimental Implants in Orthopaedic Surgery (with M. Martens)
- IWONL (National Agency for Engineering Research): two student fellowships, October 1979, 4 years
- Corporate Sponsor: \$359,000, Jan. 1981, 3 years, Skeletal fixation by bone ingrowth
- NATO Research Grant: \$4,000, August 1978, 2 years, Metal Fiber - Glass Biomaterial Composites (with L.L. Hench)

University of Pennsylvania, past

- BRSR - NIH, RR-07083-19, subgrant 17: \$6,390, (June 1984) The measurement of the initial stability of porous coated implants
- Corporate Sponsor, \$18,243 (Aug. 1984)(10 months) Heat treatment of titanium for medical implants
- NATO Research Grant, \$5,500, August 1984, 2 years, Dental Implants of Fiber - Reinforced Bioglass Composite (with M. De Clercq, University of Leuven)
- Corporate Sponsor, \$79,554, February 1985 - 21 months, Tricalcium phosphate and hydroxyapatite coatings on porous metals
- University of Pennsylvania Research Foundation, April 1985, \$1,870, Bony ingrowth and metal ion release from a porous, flexible titanium material
- NSF - MRL (#DMR-8519059), \$51,009, May 1985 - 22 months, Incipient fatigue fracture of Ti-6Al-4V with a porous surface

- Corporate Sponsor, \$165,231, May 1985, 3 years - 3 months, Thermochemical treatment of porous coated Ti-6Al-4V
- Corporate Sponsor, \$414,600, December 1985, 3 years - 9 months, Tifelt, a porous flexible titanium material for reconstruction surgery (with J. Cuckler, M.D.)
- NSF - ECE 8515031, \$251,232, April 1986, 3 years, Materials characterization and bone growth conduction of hydroxyapatite linings on porous titanium
- Corporate Sponsor, \$619,600, July 1986 - December 1990, Tissue ingrowth into orderly oriented wire mesh coated implants (with J. Cuckler, M.D.)
- BFP - State of Pennsylvania, \$168,960, September 1986, 3 years, Tifelt, a porous flexible titanium material for reconstruction surgery (with J. Cuckler, M.D.)
- VA - Rehab R & D Project 356, \$397,070, October 1986, 3 years, Initial stability of orderly oriented wire mesh porous coated implants (with B. Heppenstall, M.D.)
- Corporate Sponsor, \$90,600, January 1989 - 1 year, Plasma sprayed tricalcium phosphate coated hip endoprostheses (with J. Cuckler)
- Corporate Sponsor, \$168,531, January 1990, 1 year, Optimization of orderly oriented wire meshes (with J. Cuckler)
- NIH, Specialized Center for Osteoporosis Research, P.I., C.T. Brighton, Project 5, Osteoporosis and bone tissue ingrowth, P.I. with J. Cuckler, September 1, 1987, 5 years, \$809,000
- NSF - BCS-9010531, \$243,046, July 1990, 3 years, Materials characterization and bone growth conduction of calcium phosphate linings on porous titanium
- NIH, 1 R01 AR 40881-01, \$417,900, April 1991, 2 years, Mechanisms of ion release from titanium and its alloys (priority score 125; percentile 4.5)
- VA - Rehab R & D project, \$390,000, October 1990, 3 years, Optimization of orderly oriented wire meshes (with J. Cuckler, MD)
- Corporate Sponsor, \$69,000, January 1991, 1 year, Initial stability of modular hip prostheses (with J. Cuckler, MD)
- University Research Foundation, \$ 9,000, June 1993, "Porous glass templates for in vitro synthesis of bone tissue"
- New York Hemophilia Society, \$20,500, May 1993, 1 year, Improvement of Orthopaedic implants for the hemophilia population: Ph.D. student fellowship (PI: P. Ducheyne)
- Corporate Sponsor, \$ 64,893 (year 1), June 1994, 2 years, Fretting corrosion studies of modular interfaces (PI: P. Ducheyne)
- NIH, R01 DE 41143-01, \$610,000, October 1, 1992, 3 years, Calcium phosphate ceramic: mechanism of bone interaction (PI: P. Ducheyne)
- Corporate Sponsor, \$140,000, September 1992, 4 years: Fundamental aspects of fretting corrosion (PI: P. Ducheyne)
- NSF BCS-92-02314, \$600,000, July 1992, 3 years, Biomaterial templates for optimal in vitro bone tissue synthesis (Group grant, PI: P. Ducheyne)
- NSF - BCS-9309053, \$177,477, July 1993, 3.5 years, Immersion induced surface modification of calcium phosphate ceramics and glasses (Proposal ranked first of all principal investigator grants in the bioengineering division in this fiscal year's competition) (PI: P. Ducheyne)
- NIH, R01 AR 40-0194, \$ 619,560, July 1, 1994, 3 years, Mechanisms of ion release from titanium and its alloys (priority score 110; percentile 0.2) (PI: P. Ducheyne)
- NIDR - Comprehensive Oral Health Research Center Program, preparatory grant PI: J. Rosenbloom, 1 year, Jan. – Dec. 1997
 - Bioactive ceramic – bone tissue interaction, \$ 64,000 (PI.: P. Ducheyne)
- Corporate sponsor, \$ 60,000, January 1, 1997, 1.5 years, Internal resorption of bioactive glass granules of narrow size range (PI: P. Ducheyne).
- NSF, Academic Research Infrastructure Program, \$ 629,000, Sept. 1, 1996, Renovation of Cell Engineering Laboratories (PI: D. Meaney)
- United States - Israel Binational Science Foundation, \$ 130,000, Oct. 1, 1996, 3.5 years, Hard coatings on total hip implants: processing, wear behavior and biocompatibility (PI: E. Gutmanas, Technion, Israel)
- NASA, UGS95-0041, \$ 750,000, Sept. 1, 1995, 5 years, The use of bioactive particles as microcarriers in microgravity environment (PI: P. Ayyaswamy)
- VA, A2141RC, January 1, 1998, 3 years, \$ 305,200, In vivo tissue response to in vitro synthesized bone (PI: J. Garino)

- NASA, January 1998, 4 years, \$ 403,000, Surface transformation of reactive glass in a microgravity environment (PI: P. Ducheyne)
- Corporate sponsor, July 1996, 3.5 years, \$ 250, 000, Bioactive materials and tissue engineering laboratory equipment grant (P.I. P. Ducheyne)
- NIH, AR 07132, \$ 375,000, July 1, 1996, 5 years, Training in Bone and Cartilage Research (PI: C.T. Brighton)
- NIH, R01 DE-13051, \$ 1,137,908, September 1, 1997, 5 years, Tissue engineering of the intervertebral disk (25 % time effort, PI: E.Vresilovic)
- University of Pennsylvania Research Foundation, November 2000, \$20,000, A laser tweezer apparatus for quantifying cell-surface adhesion (PI: R. Composto).
- NASA, \$ 1,191,389, April 2001, 4 years, Impact of microgravity on human osteoblast life history (8 % time effort, P.I. I. Shapiro)
- NIH, R01 HL6042, \$ 1,248,286, April 2000 – March 2005, Functionalized surfaces for bone cell adhesion (25 % time effort, PI: P. Ducheyne), score: 184, percentile: 8.6
- NIH, R01 AM, DE13800, \$ 1,348,000, July 2000 – June 2005, Osteogenic induction with implant materials (20 % time effort, PI: P. Leboy), score: 150, percentile: 4
- Nanotechnology Institute, \$ 160,000, January 2005, 2 years, Nanostructural control of the release of opioids prevents their abuse (8 % time effort, P.I. Paul Ducheyne)
- DOD, \$ 2,750,209, December 2003, 4 years, Orthopaedic implants engineered to prevent post-operative infection of open fractures (25 % time effort, P.I.: I. Shapiro (Jefferson University), co-P.I. P.Ducheyne (P.I., University of Pennsylvania subcontract))
- NIH, R01 AR-050068, \$ 1,199,371, September 2003 – August 2007, Bone Water and Mineralization Measured by Nuclear Magnetic Resonance (5 % time effort, PI: F. Wehrli)
- Corporate Sponsor, \$ 50,000, May 15, 2007, 1 year, Unrestricted grant (PI: P. Ducheyne)
- Binational Science Foundation, Tel Aviv, Israel, \$ 230,000, October 2005, 4 years, Development of Bioresorbable Load Bearing Nanostructured Ceramic-Polymer Composites with entrapped Biomolecules (5 % time effort, P.I.: Elazar Gutmanas, Israel institute for Technology, Haifa, Israel)
- Nanotechnology Institute, Benjamin Franklin Technology Partnership of Pennsylvania, Cellular Probes Core Group (P.I. Haim Bau, Co-P.I. "Core member": P. Ducheyne), April 2007, 1 year, year to year renewable, average \$ 126,000 / year (per co P.I.)
- Korea Materials & Component Agency (KMCA) , P.I. Hyoun-Ee Kim, Seoul National University, Korea Co- P.I.: Paul Ducheyne (PI, University of Pennsylvania subcontract, \$30,000), October 1, 2008 – September 3, 2009
- DoD, AFIRM - Armed Forces Institute for Regenerative Medicine, Bringing New Therapies to the Injured Warfighter, Consortium P.I.: J. Kohn, Rutgers University, March 2008, 1 year, P.I. University of Pennsylvania subcontract: P. Ducheyne – year 1: \$ 237,500
- DoD, Army Broad Agency Announcement Program, \$ 750,000, January 2007, 3 years, Chronic Pain Treatment by Controlled Release of Local Anesthetics from Biocompatible Hydrogel Wound Dressings, P.I.: D. Devore, Rutgers University, co-P.I. P. Ducheyne (P.I., University of Pennsylvania subcontract))
- Nanotechnology Institute, Benjamin Franklin Technology Partnership of Pennsylvania, Proof of Concept Grant award (P.I. P. Ducheyne) January 2008, (year 1), September 2009 (year 2), each \$ 50,000/ year, Nanostructured bactericidal sol-gel coatings on percutaneous orthopaedic external fixator pins.
- NIH, Bioengineering Research partnership, \$ 3,388,035, July 2004, 5 years, Smart substrates for a new generation of implants (25 % time effort, P.I.: I. Shapiro (Jefferson University), co-P.I. P.Ducheyne (P.I., University of Pennsylvania subcontract))
- University Science Center, QED program, \$200,000, October 15 2009 (12 months). "Nanostructured bactericidal sol sol-gel thin films on percutaneous orthopaedic external fixator pins." (ranked 1st out of 73 proposals), P.I.: P. Ducheyne
- Veterans Administration, Rehabilitation Engineering section, Timed-release of Bupivacaine for post-operative pain control utilizing sol gels, PI: Jonathan Garino (has a 5/8 appointment at the VA), co-PI: P. Ducheyne (P.I., University of Pennsylvania subcontract), \$ 649,091 total direct cost over 4 years, October 1, 2010
- Applied Research and Technology Development Award (ARATDA), Defense Medical Research and Development Program (DMRDP), DoD, Infected Fractures - Treatment and Mitigation of Biofilm Formation, September 1, 2010, 4 years, \$1,452,250 (total cost) P.I. : P. Ducheyne

Active

- ITMAT's Transdisciplinary Awards Program in Translational Medicine & Therapeutics (Univ. of Pennsylvania): "A controlled release, 3D Printed Bone Tissue Engineered Scaffold for Treating Infected Bone Defects", February 1, 2015, 1.5 years, \$ 125,000 total direct cost, P.I.: P. Ducheyne
- Defense Medical Research and Development Program (DMRDP), "Novel Biocompatible Wound Dressings for Chronic Pain Management and Infection Control", October 1, 2015, 3 years, \$ 1,323,000 (total cost), P.I.: P. Ducheyne

Corporate Sponsors: Bristol Myers Squibb, DePuy, Gentis, Miter, Natasa, Orthovita, Richards, Zimmer

MENTOR OF POSTDOCTORAL FELLOWS:

C.S. Kim (June 1988 - March 1990), Professor, Inst. Bioengineering, Seoul University, Korea.
K. Ishikawa (July 1990 - March 1991), Professor, Kyushu University, Fukuoka, Japan.
D. Christiansen (July 1992 - June 1994), Adjunct Assistant Professor, Center for Biomaterials, Dept. of Pathology, Robert Wood Johnson School of Medicine, New Jersey
P. Li (November 1994 - November 1996), Corporate Scientist, DePuy, a Johnson and Johnson Company, Warsaw, IN
Q.- Q. Qiu (March 1996- October 1999), Director of Materials Processing, LifeCell, Branchburg, NJ
A. El-Ghannam (May 2000 – January 2002), Associate Professor, Department of Mechanical Engr & Engr Science, University of North Carolina, Charlotte, NC
G. Toworfe (May 2002 – June 2005), Associate Professor, University of Ghana, Accra, Ghana.
M. Ni (June 2005 – June 2007), Research Scientist, Singapore Institute for Biotechnology
J. Kim (November 2006 – December 2009)
Haibo Qu (September 2007 – December 2015) (fellow also promoted to Research Associate)
Marius Costache (September 2007 – September 2010) (co-advised with Dr. D. Devore, Rutgers University)
Sanjib Bhattacharyya (October 2007 - ...) (currently Research Associate)
Baek-Hee Lee (January 2009 – March 2010)
Tonye Briggs (September 2011 – December 2014)
Pedro Alvarez-Urena (December 2015 - ...)

HOST OF VISITING PROFESSOR:

Changsheng Liu, Professor and Director, Engineering Research Center for Biomaterials, East China University of Science and Technology, Shanghai, China (2005)

Ph.D. THESES SUPERVISED:

Katholieke Universiteit Leuven

- W. Van Raemdonck (with P. De Meester) (1985 recipient of the ESB - Jean Leray Award): May 1985, Hydroxyapatite Coatings on Titanium; current position: President, Bekaert - Hemiksem, Inc., Hemiksem, Belgium.
E. Schepers: April 1986, Bioglass composite dental implants (with M. DeClercq, D.M.D., Ph.D.); current position: Associate Professor, Department of Restorative Dentistry, Katholieke Universiteit Leuven, Leuven, Belgium.

University of Pennsylvania

- D. Kohn, Ph.D., May 1989, Mechanisms of failure in Porous Coated Ti-6Al-4V Alloy; Current Position: Professor, Department of Biologic and Materials Sciences, University of Michigan, Ann Arbor.
K. Healy, Ph.D., May 1990, An interfacial approach to the mechanisms of passive dissolution of titanium in biological environments; Current Position: Professor, Department of Bioengineering, University of California, Berkeley, CA.
T. Topoleski, Ph.D., August 1990, Failure mechanisms of poly(methylmethacrylate) bone cement and fracture characteristics of titanium fiber reinforced bone cement; Current Position: Professor, Department of Mechanical Engineering, University of Maryland, Baltimore.
D. Wolfarth, Ph.D., August 1991, The mechanical behavior of porous coatings on Ti alloys; Current position: Fellow, FDA, Rockville, MD.

- C. Cohen, Ph.D. Aug. 1992, The initial stability of porous coated hip prostheses; Current position: Vice-President, Business Development, Gentis, Philadelphia, PA.
- P. Bianco, Ph.D. , Aug. 1993, Passive dissolution processes of titanium related to its in vivo distribution pattern; Currently: Partner, Fleit, Kain, Gibbons, Gutman, Bongini & Bianco, Patent Attorneys, Miami, FL.
- M. Marcolongo, Ph.D., August 1995, Bioactive glass fiber/polymeric composite as a bone bonding biomaterial; Current position: Associate Professor, Department of Materials Science and Engineering, Drexel University, Philadelphia
- A. El-Ghannam (1993 recipient of the MRS student award), Ph.D., August 1995, Synthesis and characterization of template material for optimum in vitro synthesis of bone-like tissue, Current position: Associate Professor, University of North Carolina, Charlotte, NC.
- E. Santos, M.D. - Ph.D., May 1996, Bioactive sol gel derived materials as delivery vehicles for bone growth factors, Current position: Orthopaedic Surgery Residency, University of Alabama, Birmingham, AL.
- A. Garcia, Ph.D., August 1996, Quantitative analysis of fibronectin-mediated adhesion of osteoblast-like cells to bioactive glass and hydroxyapatite, Current position: Associate Professor, Georgia Institute for Technology, Atlanta, GA
- B. Smith, Ph.D., December 1996, A parametric investigation of the fretting corrosion of Ti-6Al-4V and Co-Cr-Mo in model physiological solutions. Current position: Director of knee product development, DePuy, a Johnson and Johnson company, Warsaw, IN
- E. Effah, Ph.D., May 1998, The effect of variation in physical properties of porous bioactive glass on the expression and maintenance of the osteoblastic phenotype (with D. Bonnell and I. Shapiro, co-advisors). Current position: Lecturer, Department of Physics, University of Ghana, Accra, Ghana.
- H. Lu, Ph.D. July 1998, Relationship between surface charge variations and 45S5 bioactive glass surface transformations, fibronectin adsorption and bone cell attachment (with S.R. Pollack, advisor). Current position: Assistant Professor, Department of Biomedical Engineering, Columbia University, New York
- C.C. Gan, Ph.D., November 1998 , Tissue engineering of the intervertebral disk (with E. Vresilovic and I. Shapiro, co-advisors). Current position: Research scientist, EBI, Inc., Parsippany, NJ
- T. Livingston, Ph.D., May 1999, Bioactive scaffold for bone tissue engineering; an in vivo study (with J. Garino, co-advisor). Current position: Assistant Professor, Department of Mechanical Engineering, New Jersey Institute of Technology, Newark, NJ
- H. Gao, Ph.D., May 2000, Modeling of microgravity conditions in the rotating wall vessel (with P. Ayyaswamy, advisor), Current position: R & D, Corning Glass, Corning, NY
- W. Lai, Ph.D., August 2000, Bioactive glass degradation products: distribution and pathway of removal, Current position: Engineer, Exponent Failure Analysis Associates, Philadelphia, PA
- J. Yao, Ph.D., June 2004, Tissue engineering – mechanistic biological effects and functional reconstruction goals. Current position: Research Fellow, Morphotek, Exton, PA
- M. Lee, Ph.D., August 2005, Optimization of surface-immobilized peptide/protein presentation for control of the biological activity of substrates for tissue engineering applications. Current position: FDA, Gaithersburg, MD
- G. Silva, Ph.D., August 2006, New microparticle systems for the controlled release of drugs and innovative tissue engineering methodologies (with R. Reis, University of Minho, Portugal, advisor)
- R. Cheng, Ph.D., November 2012, Preparation, release behavior and release mechanism of drug delivery systems, using bioactive glass as the matrix (with S. Guo, Sichuan University, Chengdu, China)

RECENT M.Sc. THESES SUPERVISED:

Amit Birla, 1994
 Lisa Chen, 1994
 Andy Chu, 1995
 John Marshall, 1995
 Sylvie Falaize, 1995
 Boon H. Tan, 1996
 Gehan El-Bassyouni, 1997
 Victoria Shih, 1997
 Kay Hsu, 2001
 William Chen, 2005
 Hyunjin Kim, 2005
 Omkar Kawalkar, Kshitij Ladage, Eric Hsu, 2008

Henson Wang, Neha Sachdeva, 2009
 Joseph McLouglin, 2010
 Shubhagata Deb Roy, Ashwin Agrawal, 2012
 Kun Peng, Pu Qin, Rowland Han, 2013
 Mu-Huan Lee, 2015
 Feiran Li, 2017

CO-ADVISOR OF ORTHOPAEDIC RESIDENTS (PGY2):

1986-1987: Tashin Ergin
 1987-1988: John Beight
 1988-1989: Bryan Evans, Jim Mitchell
 1989-1990: Mark Lazarus, Steve Roth
 1990-1991: Howard Gelb, Sanjiv Naidu
 1991-1992: Steve Teisch, Gary Kitay
 1992-1993: Richard Moore, John T. Campbell, R.J. Sullivan
 2005-2006: Neil Sheth

ADMINISTRATIVE RESPONSIBILITIES:

Extramural Responsibilities

1979-1982 Chairman-Founder of the Technical Group "Biomedical Engineering and Health Care" of the Belgian Engineering Society
 1980-1983 Secretary, European Society for Biomaterials
 1980 Member, Clemson Awards Designating Committee, U.S. Society for Biomaterials
 1981 Biomedical Engineering Committee of the European Economic Community: Spokesman for Biomaterials
 1982-1983 Member, Board of Directors, Meditek (Belgian Institution to promote Biomedical Industrial Activity)
 1983 Chairman, Fourth Conference of the European Society for Biomaterials, University of Leuven, August 31 - September 2
 1984-1985 Member, Ad Hoc Biomedical Engineering Study Section, SBIR, NIH
 1986-1987 Member, Program Committee, Orthopaedic Research Society
 1986 Chairman, Engineering Foundation Conference on Bioceramics Santa Barbara, November 1986
 1988-1989 Member, Program Committee, Soc. Biomaterials
 1989 Member, NIDR - Dental Biomaterial Center Grant - Study Section
 1990-1991 Society for Biomaterials, Council member
 1991 Whitaker Foundation, Grant programs, reviewer
 1991-1992 Society for Biomaterials: Member-at-large; Member, Board of Directors
 1991- International Society for Ceramics in Medicine, Member - Executive Committee, Member - International Steering Committee,
 1993 International Society for Ceramics in Medicine, President
 1993-1994 Society for Biomaterials, President-Elect
 1994-1995 Society for Biomaterials, President
 1995-1998 American Institute for Medical and Biological Engineering:
 Member, Council of Societies - Board
 Member, Fellows nominating committee
 1997 Member, NIDR - Dental Biomaterial PPG ad hoc Review Section
 1997 Turku University, Dept. Materials Science, Turku, Finland, Outside referee Ph.D. thesis
 1998 Member, Program Committee, Orthopaedic Research Society
 1998 - International Society for Ceramics in Medicine, Member - Board of Directors
 2001 Member, National Research Council – Space Studies Board: Committee on Microgravity Research
 2002 Université Blaise Pascal, Clermont Ferrand, France, Outside referee Ph.D. thesis
 2002 Technische Hogeschool Twente, The Netherlands, Outside referee Ph.D. thesis

2003,	Outside reviewer, promotion and tenure dossiers (University of Kentucky, Case Western Reserve University, University of Washington, University of California, Berkeley, University of Sydney, Notredame University, National University of Singapore, Hongkong University, Nanyang Institute of Technology, Singapore, University of Aberdeen, UK, ...)
2003	NICDR, member of ad hoc Study Section (RFA on Tissue Engineering)
2004 -	Member, International Advisory Board, EU-6 Program – Novel Therapeutic Strategies for Tissue Engineering of Bone and Cartilage Using Second Generation Biomimetic Scaffolds
2005	Turku University, Dept. Orthopaedics, Turku, Finland, Outside referee Ph.D. thesis
2005	Elsevier, Member of the Selection committee for the Elsevier – Biomaterials Gold and Silver Medals
2006	Member, Program Committee, Orthopaedic Research Society
2007	Member, nominating committee, International Ceramics Prize 2008, World Academy of Ceramics
2006 -	NIH - NIBIB, Member, Study Section, R 03 grant applications
2007 -	Ireland Science Foundation, Program of Excellence, International evaluation committee
2015	Wallenberg Foundation, Stockholm, Sweden, Reviewer
2015	MRC, London, England, Reviewer

Internal University Responsibilities

1981-1983	Secretary, Biomedical-Engineering Program, Katholieke Universiteit, Leuven
1984-1985	Member, Ad Hoc Committee on Bioengineering Undergraduate Curriculum, University of Pennsylvania
1985	Member, International Programs Advisory Board
1985-1986	Member, SEAS - University of Pennsylvania Library Committee
1985-1986	Member, SEAS - University of Pennsylvania, Committee on Patent Policy
1986-1987, 1989-1991	Member, SEAS - University of Pennsylvania, Safety Committee
1988-1990	Member, SEAS - University of Pennsylvania, Long Range Planning Committee
1989	Member, Review Board, International Fund Applications.
1990-1993	Member, Faculty Grievance Commission, Hearing List
1994	Co-Chair, Subcommittee on Education, Institute for Medicine and Engineering
1996- 1998	Member, Graduate Council of Faculties
1997	Member, Penn internal review committee, Department of Finance, Wharton School of Business Administration
1998	Consultant to Penn's Dental School review committee
2005	Member, Panel, "Penn integrates knowledge locally and globally"– Aging
2007	Member, Ad-hoc Committee, Appointments and Promotions, School of Medicine
2010 - 2012	Director of the MSc Degree Program in Bioengineering, and Director of Admissions
2012 -	Member, Executive Committee, Department of Bioengineering
2015 -	Member, University-wide Standing Committee on Conflict of Interest

EDITORIAL POSITIONS:

Editor-in-Chief

"Comprehensive Biomaterials", Elsevier, Oxford, August 2011.

A 3650 page, 6-volume hard copy and on-line publication (Science Direct platform) covering the field of Biomaterials

Co-editors: Kevin Healy (University of California at Berkeley, Berkeley, USA), Dietmar Hutmacher (Queensland University of Technology, Brisbane, Australia), David Grainger (University of Utah, Salt Lake City, UT) and James Kirkpatrick (Johannes Gutenberg University, Mainz, Germany).

Editorial Board Member

1. Biomaterials, Elsevier, Oxford, England (1979 -)
2. J. Biomedical Materials Research, J. Wiley, Inc., New York, USA (1981-)
3. Materials in Medicine, Chapman and Hall, London (1990 -)
4. J. Hard Tissue Biology, Society of Hard Tissue Biology, Tokyo, Japan (1998 -)
5. Implant Dentistry, Lippincott, Williams & Wilkins (1993-)
6. Tissue Engineering and Regenerative Medicine, John Wiley (2007 -)
7. Advance Biomaterials and Devices in Medicine (2014 -)

Open Access Journals – Recent Editorial Positions

1. Bioceramics Development and Applications, Omics Group, Associate Editor (2010 -)
2. Journal of Biomaterials and Tissue Engineering (2010 -)
3. Journal of Biomaterials and Nanobiotechnology, Scientific Research Publishing, USA (2011-)
4. Journal of Regenerative Medicine & Tissue Engineering (2011 -)
5. The Open Biomaterials Journal, Bentham (2013 -)

Past Editorial Positions

1. J. of the Engineering Alumni of the University of Leuven (1980-1983): editorial board member
2. J. Biomechanics, Pergamon Press, London, The United Kingdom (1981 - 1984): editorial board member
3. Comtex System for Biomechanics and Bioengineering, New York (1982 - 1983): editorial board member
4. Progress in Biomedical Engineering: Elsevier Scientific Publishing Company, Amsterdam (1984-1991), Co-editor-in-chief with Dr. A. J. C. Lee, (University of Exeter, England) of a book series
5. J. Orthopaedic Research, Raven Press, New York (1986 - 1991): editorial board member
6. J. Clinical Materials, Edward Arnold, London (1985- 1995): editorial board member; merged with Biomaterials per Jan. 1, 1996
7. Cells and Materials, Scanning Microscopy International, Chicago (1990 - 1998), editorial board member

Review requests of archive journal papers (non-comprehensive list)

1. ACS Applied Materials & Interfaces
2. ACS Central Science
3. Acta Biomaterialia
4. Applied Biochemistry and Biotechnology
5. Applied Surface Science
6. Bioceramics Development and Applications
7. Biofabrication
8. Bioinspired, Biomimetic and Nanobiomaterials
9. Biointerphases
10. Biomacromolecules
11. Biomaterials Science – Royal Society of Chemistry
12. Biomedical Materials – Institute of Physics
13. BioMed Research International
14. Biotechn & Bioengineering
15. Biotechnology Advances
16. Bone
17. Carbohydrate Polymers
18. Cells and Materials Journal
19. Ceramics International
20. Clinical Orthopaedics and Related Research
21. Colloids and Surfaces A: Physicochemical and Engineering Aspects
22. Colloids and Surfaces B: Biointerfaces
23. Composites Science and Technology
24. Current Drug Delivery
25. Current Pharmaceutical Design
26. European Journal of Pharmaceutics and Biopharmaceutics
27. European Polymer Journal
28. Expert Opinion on Drug Delivery
29. eXPRESS Polymer Letters

30. International Journal of Biological Macromolecules
31. International Journal of Molecular Sciences
32. International Journal of Nanomedicine
33. International Journal of Pharmaceutics
34. J. American Ceramics Society
35. J. American Chemical Society
36. J. Applied Biomaterials
37. J. Physics D: Applied Physics
38. J. Biomaterials Applications
39. J. Biomaterials & Tissue Engineering
40. J. Biomechanics
41. J. Bone and Joint Surgery
42. J. Colloid and Interface Science
43. J. Controlled Release
44. J. Dental Research
45. J. Material Chemistry
46. J. Material Chemistry B
47. J. Materials Science
48. J Orthopaedic Research
49. J. Royal Society Interface
50. J Sol Gel Science and Technology
51. Langmuir
52. Materials Chemistry and Physics
53. Materials Letters
54. Medical Engineering & Physics
55. Medicina
56. Microscopy and Microanalysis
57. Molecules
58. Nano Today
59. Nanotechnology – Institute of Physics
60. Nature Materials
61. New Journal of Chemistry
62. Polymer Degradation and Stability
63. PLOS One (Public Library of Science)
64. Regenerative Biomaterials, Oxford University Press
65. Royal Society of Chemistry – Advances
66. Surface Topography: Metrology and Properties
67. Tissue Engineering

CONSULTANCY ACTIVITIES:

Acromed, Cleveland, Ohio
 Baxter Health Care, Chicago, Illinois
 Boston Scientific, Boston, Massachusetts
 Biomet, Warsaw, Indiana
 Cook Biotech, Indianapolis, Indiana
 Cordis, Miami, Florida
 DePuy, Inc., Warsaw, Indiana
 DuPont de Nemours, Inc., Wilmington, Delaware
 Electrobiology Inc., Parsippany, New Jersey
 FBFC, Belgium
 Imperial Chemical Industries (ICI), Wilmington, Delaware
 Landos, Inc., Malvern, Pa
 Nobelpharma, Boston, Massachusetts
 Orthovita, Malvern, Pennsylvania
 PdC Analysis, Rosemont, Pennsylvania
 Pfizer Inc., New York, New York
 Richards, Memphis, Tennessee

Synthes, West-Chester, Pennsylvania
Weck Surgical, Durham, North Carolina
Zimmer, Warsaw, Indiana

KEYNOTES, VISITING PROFESSORSHIPS AND INVITED LECTURES:

(exclusive of lectures at own institution)

1974

- Seminar at the Swiss Association of Orthopaedic Research, Davos, February 1974: "Fatigue fractures of the femoral component of Charnley and Charnley - Mueller type total hip prostheses."
- Seminar at Howmedica, Research and Development, Rutherford, May 1974: "Fatigue fractures of the femoral component of Charnley and Charnley - Mueller type total hip prostheses."

1977

- University of California at Los Angeles, Department of Orthopaedics, Biomechanics Section, January 1977: "The influence of dynamic loading on Bone Ingrowth in Orthopaedic Implants."
- Stanford University, Biomechanics Section, January 1977: "The influence of dynamic loading on Bone Ingrowth in Orthopaedic Implants."
- Mayo Clinic, Rochester, Minnesota, USA, Biomechanics Section of the Department of Orthopaedics, July 1977: "The influence of dynamic loading on Bone Ingrowth in Orthopaedic Implants."
- University of Florida, Department of Dental Biomaterials, May 1977: "The influence of dynamic loading on Bone Ingrowth in Orthopaedic Implants."
- The Gordon Research Conference on Biomaterials, Andover, New Hampshire, USA, July 1977: Invited Lecturer.

1979

- Free University, Amsterdam, June 1979: "Mechanical and microscopical evaluation of porous and bioreactive implant materials."
- Howmedica, Inc., Research and Development, Limerick, Ireland, July 1979: "Mechanical and microscopical evaluation of porous and bioreactive implant materials."
- Postgraduate courses: Recent developments in ceramics - Belgian Ceramics Industry, Mons, Belgium, October 1979.

1980

- Symposium of the Belgian Hospital Association, "Regulation and Quality Control of Implants and Implant Materials," Antwerp, Belgium, September 1979
- Opening address and conclusions on the Inaugural Meeting of the Technical Group "Biomedical Engineering and Health Care" of the Belgian Engineering Society, Antwerp, Belgium, March 1980.

1981

- KVIV-Symposium, February 1981: Biomedische engineering: onderzoek, ontwikkeling en marketing van medische producten.

1982

- Seminar, Department of Biomedical Engineering, University of Pennsylvania, Philadelphia, April 1982: "Porous Coatings with Metal Fibers or Wire Meshes."
- Lecture, Symposium on Composites, K.U.Leuven, May 1982: "Mechanische en chemische compatibiliteit van komposieten bij medisch gebruik."
- International Symposium on Cementless Fixation of Hip Prostheses, Basel, Switzerland, 25-26 June 1982: "Titan und Titanlegierungsprothesen mit poröser Drahtdeckschicht"
- 3 day course: "Skeletal Fixation of Implants: Definition, Porous and Bioreactive Materials." R & D Division, Zimmer, Warsaw, Indiana, 20-23 July 1982.
- Invited Seminar, Department of Orthopaedics, University of Nijmegen, The Netherlands, 3 September 1982: "Ontwikkelingen in orthopedische biomaterialen"

1983

- Fifth Session "Enseignement interuniversitaire de biomecanique de l'appareil locomoteur," CIBO-Brussel, Belgium, February 5-13, 1983. Invited lecturer on Biomaterials.
- Symposium on "Implant-Stimulated Interface Reactions," Berlin, February 18-19, 1983
 - Keynote on "Bioglass Coatings and Bioglass Composites as Implant Materials"
 - Session chairman: Metal-Tissue Interactions
 - Welcome Address on behalf of the European Society of Biomaterials.
- Meeting on "New Materials - Assessment of Technology," organized by the Belgian Government, Hasselt, Belgium, February 1983. Chairman: Working Group on Biomedical Materials
- Ninth Annual Meeting, Society for Biomaterials, Birmingham, Alabama, April 1983.
 - Keynote address: "Success of Prosthetic Devices Fixed by Ingrowth or Surface Interaction"
 - session chairman: Fixation of Porous Materials
- Invited Seminar: "Success of Prosthetic Devices Fixed by Ingrowth or Surface Interaction"
- Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, New York, May 3, 1983.
- The Gordon Research Conference on the Science and Technology of Biomaterials, New Hampshire, 4-8 July, 1983, Invited Lecturer: "The Relationship between Manufacturing Methods and Reactivity of Bioreactive Glass and Hydroxyapatite."
- Fourth European Conference on Biomaterials, Leuven, Belgium, September 1983: Conference Chairman

1984

- Biointeractions 1984, London, January 1984
 - Member, Scientific Committee
 - Summary of the meeting (Final session)
- Applications of Materials Science to the Practice of Implant Orthopaedic Surgery, NATO Advanced Study Institute, July 15-28, 1984, Marbella, Spain, Invited lecturer and session chairman: Osteophilic glasses and ceramics.

1985

- Invited Seminar, UC San Diego, Dept. of Orthopaedic Surgery, April 1985
- First International Meeting on Tissue Integration, Brussels, May 1985
 - chairman: (with Dr. Skalak): Basic Sciences Committee and Sessions
 - paper: (with E. Schepers and M. DeClercq) "Microchemical Analysis and Histological Evaluation of Bulk and Fiber Reinforced Bioglass Submerged Dental Root Implants in Dogs"
- Gordon Research Conference on Biomaterials, New Hampshire, June 1985, discussion leader: Bioactivity
- Dow Corning Wright Advisory Panel, Kiawah Island, June 1985, discussion leader: Porous and Bioactive Materials
- International Workshop on Biocompatibility, Toxicity and Hypersensitivity to Alloy Systems Used in Dentistry, University of Michigan, Ann Arbor, June 1985: invited discussant
- Bryn Mawr College, Department of Physics, September 1985, Bioactive materials for human implantation" (seminar)
- First International Conference on Composites in Biomedical Engineering", London, November 1985, Keynote address: Surface active composite materials
- Invited Seminar "Tendances actuelles en biomatériaux," Institut National Polytechnique de Toulouse, Ecole Nationale Supérieure de chimie, France, December 18-19, 1985.

1986

- Drexel University, Department of Materials Science, February 1986, "Bioactive materials for human implantation"
- 12th Annual meeting of the Society for Biomaterials, Minneapolis, May 1986, Invited Paper: "Future application of Composites"
- Annual Meeting of the American Association for the Advancement of Science, Philadelphia, May 1986, Invited Paper: "Bioactive Materials for Permanent Human Implantation"
- Tenth Anniversary Meeting of the European Society for Biomaterials, Bologna, September 1986,
 - Invited Paper: "The changing face in biomaterials; metal-ceramic materials"
 - Session Chairman: "Experimental use of biomaterials for permanent human implantation"
- Engineering Foundation Meeting on Bioceramics, Santa Barbara, November 1986, Chairman

1987

- Am. Acad. Implant Dentistry: Symp. on Dental Implant Research, Boston, April 1987, Invited lecture: Dental Implants, Surfaces and Coatings
- 61st Colloid and Surface Science Symposium, Amer. Chem. Soc., Ann Arbor, June 1987, Invited paper: Surface spectroscopy of calcium phosphate ceramics and titanium implant materials
- Commercial Development Association of America, Philadelphia Chapter, Lecture: "New Materials for Medical Use" Wilmington, DE, June 1987
- Royal Swedish Academy of Engineering Science, Symposium on Biomaterials and Biocompatibility, Stockholm, August 1987, Invited Lecture on "Ceramics as Biomaterials"
- Seminar, Department of Oral Biology, School of Dental Medicine, University of Pennsylvania, September 1987
- Belgian Institute for Biomedical Engineering: Symposium on "Biomedical Engineering: past, present and future" Keynote address, Leuven, Belgium, December 1987
- Invited seminar, Cordis R & D, Miami FL, December 1987

1988

- Invited seminar, Department of Orthopaedic Surgery, Cleveland Clinic Foundation, April 1988
- 1st International Bioceramics Symposium, Kyoto, Japan, April 1988,
 - Invited Paper: Bioactive ceramics coatings on metal: structure - property relationship of surfaces and interfaces
 - Discussion leader: Bioactive ceramic coatings
- Invited Seminar: Osaka, Japan, Biomaterials Research Group, April 1988
- Invited Seminar: Tokyo, Japan, Sumitomo R & D, April 1988
- Keynote: "Biomaterials, a perspective" TEC 88 - Materials, October 1988, Grenoble, France

1989

- Seminar, Hospital for Joint Diseases, New York, February 1989
- Invited speaker: NSF - Workshop "Incipient failure warning systems for implant devices": Acoustic emission analysis of porous coated devices, Miami, March 1989
- Workshop, Hydroxyapatite Characterization and Analysis, June 1989, Bethesda, Maryland, Session chairman: Characterization; Papers and panelist, in vitro coating characterization and in vivo bone tissue ingrowth enhancement
- Invited speaker: Gordon Research Conference on Biomaterials: "Bioactivity of Calcium Phosphate Coatings", July 1989
- Invited speaker: Gordon Research Conference on Calcium Phosphates: "Bone tissue ingrowth enhancement by calcium phosphate coatings," July 1989
- Seminar, Biomaterials Program, State University of New York, Buffalo, November 1989

1990

- Seminar, Department of Biomaterials, Gothenburg University, Gothenburg, Sweden, January 1990
- Panel member: The use of titanium in joint replacement arthroplasty; by invitation from Zimmer, New Orleans, February 1990
- Seminar, University of Nantes, France, March 1990, "Bioactivity of titanium and calcium phosphates: truth or fallacy"
- 7th quadrennial World Ceramics Conference (CIMTEC), Montecatini - Terme, Italy, June 1990, Invited speaker: The relationship between characteristics of calcium phosphate ceramics and the mechanisms of bioactivity.
- Postgraduate course in Dental Implantology, The Dental School, University Pennsylvania, Invited Lecturer: "Materials in dental implantology", October 12, 1990
- 12th IEEE Meeting on Biomedical Engineering, Philadelphia, November 2, 1990, Chair of the session: "Biomaterials: development and properties"
- Workshop on Engineering Education, Drexel University, November 10, 1990, Invited presentation on: "The New Bioengineering Undergraduate Curriculum at the University of Pennsylvania"
- Third International Symposium on Ceramics in Medicine, Terre Haute, IN, November 1990
 - Keynote: Bioactive ceramic coatings for early prosthetic fixation
 - Panelist: Is there an optimum bioactive ceramic?

- International Workshop on "Biomaterials - Tissue Interfaces", University of Toronto, December 3-4, 1990, Invited speaker: "Titanium: immersion induced surface chemistry changes and the relationship to passive dissolution and bioactivity"

1991

- North American Hip and Knee Symposium, organized by the University of Western Ontario, Whistler, British Columbia, Canada, January 17-19, 1991
Invited lecturer: "Design considerations in THA: Cemented vs. Cementless"
- Washington, May 1991: Seminar to the Council of Science Advisors of E.E.C. Embassies: "Bioengineering, a new technical discipline"
- First International Symposium on Apatites in Medicine, Mishima (Japan), July 1991: Invited Speaker, Session chairman, Member - Scientific Advisory Committee
- Nara Medical University, Dept. Orthopaedics, Seminar, July 1991
- Centennial Anniversary Symposium of the Japanese Ceramic Society: "International Symposium on Inorganic Phosphate Materials", Tokyo, July 1991
Keynote: Calcium phosphate based glasses and ceramics as biomaterials
- Fourth International "Ceramics in Medicine" Symposium, London, Sept. 1991. Invited presentation: "In vitro dissolution and precipitation of calcium phosphate phases on various biomaterials correlate with in vivo bioactivity"
- Symposium "Implantable materials: development, utilization and critical analysis," October 1991, University of Michigan, Invited lecturer
- Visiting Professor, Department of Orthopaedics, University of Florida, November 1991
- Van Cauwercq Chair, 1991; November 1991, University of Leuven, Belgium, Keynote address

1992

- Seminar, University of Delaware, Center for Composites, March 1992
- Seminar, University of Maryland, Dept. of Mech. Engineering, March 1992
- 4th World Biomaterials Conference, Berlin, April 1992; Chairman, Workshop on Bioactive Materials
- Seminar, Temple University, School of Dentistry, July 1992
- Gordon Research Conference on Calcium Phosphates: Newport, R.I., July 1992: "Mechanisms of bioactivity"
- Symposium on "Implant Retrieval and Analysis", Pheasant-Run, IL, September 1992: Discussion leader on: Fretting Corrosion.
- Second International Stein Conference, Philadelphia, October 1992
Keynote: Biomaterial - tissue interfaces: inertness versus bioactivity
- Dartmouth University Hip Course, Burlington, VT, October 1992: "Calcium phosphate coatings"
- Seminar, Smith & Nephew, Richards, Memphis, TN, October, 1992: "Biocompatibility of titanium, and the effect of fretting corrosion."
- Italian-American "Workshop on Bioceramics", Faenza, November 1992: "Bioactivity of calcium-phosphate ceramics", "Methods of analysis of the bone tissue-ceramic interface".

1993

- "Bone bonding biomaterials", Inaugural Workshop for the Biomaterials Building, University of Leiden, The Netherlands, January 1993: Invited presentation
- "Bioceramics", Workshop, Alfred University, June 1993, Keynote speaker and panelist: "Mechanisms of bioactivity"
- 20th annual Eugene W. Skinner Lecture: Bioactive Ceramics and Tissue Response", Northwestern University Dental School, October 1993
- Repair and Augmentation of Dental Osseous Tissue with Synthetic Graft Materials", A one day workshop organized by the University of Leuven and the University of Pennsylvania, Leuven, Belgium, October 1993
 - organizer: welcome and conclusions
 - "The principle of bone bioactivity and the optimization of therapies for bone growth"

1994

- The ICOI Roland Meffert Symposium, New Orleans, Invited Speaker: "Understanding hydroxyapatite and its coatings", New Orleans, January 1994.
- Seminar, University of Rochester, Mechanisms of bone bioactivity of Calcium Phosphate ceramics and glasses, May 1994
- Seminar, Mount Sinai School of Medicine, Mechanisms of bone bioactivity of Calcium Phosphate ceramics and glasses, May 1994
- XIV th World Congress, The International Congress of Oral implantologists, Munich, Germany: "Mechanisms of Bone Bioactivity and Granule Use", June 1994
- Gordon Research Conference on Glass Science and Technology: Mechanisms of bone bioactivity of calcium phosphate ceramics and glasses, presenter: Dr. S. Radin, June 1994
- Gordon Research Conference on Calcium Phosphates: Mechanisms of bone bioactivity of calcium phosphate ceramics and glasses, presenter: Dr. S. Radin, July 1994
- Invited lecture, Surface Science Symposium, Scottsdale: Mechanisms of interaction between titanium and physiologic milieu, September 1994
- Invited lecture, Workshop on cellular interactions with biomaterials, University of California, San Diego: Bioactive glass surface reactions are cell mediated, September 1994
- Invited lecture, Annual meeting, American Academy of Implant Prosthodontics: Artificial graft materials enhance the implant bony support, Philadelphia, September 1994
- Keynote lecture, Journées d'automne, Societe Francaise de Metallurgie et de Materiaux: Interactions materiaux bioactifs - tissus: science des materiaux ou ingenierie biomédicale, Paris, October 1994
- Invited lecture, Symposium on Biomaterials Education, Clemson University, S.C., November 1994: The biomaterials program at the University of Pennsylvania
- Repair and Augmentation of Dental Osseous Tissue with Synthetic Graft Materials", A one day workshop organized by the University of Caracas, Caracas, Venezuela, December 1994
 - "The principle of bone bioactivity and the optimization of therapies for bone growth"
 - "Future perspectives"

1995

- "Medical science and device industry put tort law on trial" Co-organizer with Pierre Galletti of a workshop at the annual AAAS meeting, Atlanta, February 19, 1995
- "Tissue Engineering: in vitro or in vivo", Presidential address at the annual meeting of the Society for Biomaterials, San Francisco, March 1995
- Synthetic graft materials for use in mandibular and maxillary procedures, Postgraduate Lecture, Temple University Dental School, Philadelphia, April 1995
- "Mechanisms of bone bioactivity of calcium phosphate ceramics and glasses", MRS Spring Meeting, San Francisco, April 1995
- Workshop by invitation: "Technology Transfer Consensus" organized by the American Academy of Orthopaedic Surgeons, Chantilly, VA, May 1995
- "Fonctionnement des surfaces de titane", and "Biomateriaux du futur", invited speaker at the "Ecole thematique CNRS (Centre Nationale de Recherche Scientifique) sur les Biomateriaux", Nemours, France, June 1995
- Workshop by invitation: "Considerations of Implant Wear for the Future of Total Joint Replacement" organized by the National Institutes of Health and the American Academy of Orthopaedic Surgeons, Chicago, September 1995
- "In vivo engineering of bone tissue leads to expeditious repair", International Congress, British Academy of Aesthetic Dentistry, Birmingham, September 1995
- " Biomedical Engineering Education: An American Perspective", Fifteenth Anniversary Symposium and Gala Event, Biomedical Engineering Chapter, Belgian Engineering Society, Ghent, Belgium, September 1995
- "Mechanisms of bone bioactivity of calcium phosphate ceramics and glasses", Symposium on thin films and biomaterial Interfaces", 42nd Annual Mtg., American Vacuum Society, Minneapolis, October 1995
- " Mechanics of biomaterial - tissue interface: mechanical or bio-engineering", seminar, department of mechanical Engineering, George Washington University, Washington DC, October 1995
- "In vivo bone tissue engineering with bioactive glass granules of narrow size range", Invited Panelist, 2nd International ICOI Conference, Pacific Asian Section, Sendai, Japan, November 1995

1996

- Visiting Professor, University of Modena, Italy: April 1996: "Strength and Surface properties of Biomaterials" and "Bioactive Glasses in Dentistry"
- Invited speaker, International Congress, Deutsche Gesellschaft fur Zahnimplantologie, Stuttgart, May 1996, "Bioactive glass granules of narrow size range optimally affect cellular activity; the relationship to the effect of growth factors"
- European seminar series, (Friedrich Schiller Universitat, Jena, Germany; University of Milan, Italy; University of Padua, Italy) May 1996: "Mechanism of bone bioactivity and the optimization of synthetic bone graft materials"
- International Congress Orthopaedica Belgica, Aalst, Belgium , June 1996, "Bone Growth and the Therapeutic Significance of Calcium Phosphate Ceramics and Glasses"
- Forum on Biomechanics, Invited panelist ("Mechanics, Biomaterials and Tissue Engineering"), Mechanics and Materials Conference, ASME, Baltimore, June 1996
- Visiting Professor, the Technion, Haifa, Israel, June 1996: "Biomaterial - bone tissue interactions; The mechanisms of bone bonding of bioactive ceramics" and "In vitro synthesis of bone tissue"
- Invited speaker, 3i International Symposium on Osseointegration, Abano Terme, Italy, September 1996: "The effect of bioactive materials on cells and growth factors"
- Seminar speaker, Pennsylvania State University, Dept. of Materials Science and Engineering, November 1996: "Mechanics, bioactive ceramics and tissue engineering"
- Invited Speaker, 16th Japanese Orthopaedic Ceramic Implant Meeting, Kyoto, November 1996: "Bioactive glass and hydroxyapatite promote cell function along different time lines"
- Invited panel discussion participant and session chair, 9th International "Ceramics in Medicine" Symposium, Otsu, Japan, Nov. 1996: "Bone bioactive material surface changes and bone cell function are related".

1997

- Workshop on Tissue Engineering, Hiltonhead, invited presentation (given by A. Garcia), February 1997
- NASA Biotechnology Investigators Meeting, invited presentation, "Bioactive glass particles as carriers for osteoblast proliferation and function under microgravity conditions" (given by Q.Q. Qiu), Houston, February 1997
- Seminar "Mechanics, Biomaterials and Tissue Engineering", Institute for Biomedical Engineering, University of Minnesota, April 1997
- Turku University, Turku, Finland, Outside referee Ph.D. thesis, Mrs. Brink, September 1997
- 10th International "Ceramics in Medicine" Symposium, Paris, October 1997, Session chair, Keynote presentation, Mechanisms of integration of bioactive ceramics and glasses into bone tissue.

1998

- NASA Biotechnology Investigators Meeting, Houston, February 1998, Invited presentation (given by Q.Q. Qiu) Three dimensional bone growth on hollow bioactive ceramic spheres in a microgravity environment
- 44th Annual Meeting of the Orthopaedic Research Society, New Orleans, March 1998,
 - Moderator, session on Biomaterials
 - Member, program committee
- Invited Seminar, Department of Bioengineering, UCSD, April 1998: "The effect of bioactive ceramics and glasses on cell and growth factor function"
- Organizer, Panel Discussion, Bone Tissue Engineering, 24th annual meeting of the Society for Biomaterials, San Diego, April 1998
- Invited speaker, Symposium on biomaterials and biotechnology: applications and perspectives in dentistry", Genoa, June 1998: "Interaction between biomaterials and bone tissues"
- Cimtec 1998, 9th International Conference on Modern Materials and Technologies, Florence Italy, June 1998, Member, program committee
- Gordon Research Conference on Biomineralization, Invited speaker, "Bioactive glass surface changes and bone cell function are related", Henniker, New Hampshire, August 1998

- International Symposium on Ceramic/Ceramic in Total Hip Replacement, Philadelphia, September 1998, Invited Speaker, "Ceramic thin films grown out of the metal surface reduce ion release in metal on metal sliding", and Moderator "Material properties of ceramics in total hip replacement"
- Third Combined Meeting of the Orthopaedic Research Societies of the USA, Europe, Japan and Canada, Hamamatsu (Japan), September 1998, Workshop organizer and chair, "Bone biomaterial substitutes", Invited speaker; "The effect of materials on bone cell adhesion, signaling and function"
- 11th International "Ceramics in Medicine" Symposium, New York, November 1998, Invited Speaker, "Mechanism of biointegration of bioactive materials"

1999

- NASA Biotechnology Investigators Meeting, Houston, March 1999, Invited presentation, Bioactive glass particles stimulate the expression of the osteoblast phenotype in microgravity
- Third Annual Orthopaedic Tissue Engineering Meeting, The Institute for International Research, Boston, May 6, 1999, Invited Speaker, "Synthetic materials stimulate biological function"
- City College of New York, seminar, New York, May, Bioactive glass stimulates biological function
- International Conference on Glass Science, Rolla, MO, June, "Bioactive glass stimulates biological function"
- Portland Bone Symposium, Portland, OR, August, Session Chair, Ceramics and Bone
- Nanyang Institute of Technology, Singapore, Nanyang Distinguished Professor, August:
Public Lecture: "Biomaterials, Tissue Engineering and the Quality of Life"
Research seminars: "Bone bioactivity of calcium phosphate ceramics" and "Bioactive glass stimulates biological function"
- Symposium on new trends in joint reconstruction, San Francisco, September, Presentation: "Ceramic thin films grown on metal surfaces", Chair, Ceramic/ Polyethylene Bearings
- Japanese Orthopaedic Research Society, Nara, October, Symposium on "Cell transplantation for orthopedic therapeutics", Invited speaker: "Tissue engineered bone enhances mechanically functional repair of bone defects"
- Twelfth International Symposium on Bioceramics, Nara, Japan, October, Member, International organizing committee, Session chairperson "Cell culture on Bioceramics"
- BMES, Atlanta, October, Invited presentation "Porous Surface Modified Bioactive Glass Stimulates Tissue Engineered Repair of Long Bone Defects"
- MRS, Boston, November, Invited Speaker: "Mineralization with bioactive glass"
- Second National Veterans Administration Rehabilitation Research and Development Conference A bioactive scaffold for bone repair. (by T. Livingston)

2000

- University of Virginia, Charlottesville, seminar, April 2000: "The Materials Perspective to Tissue Engineering - Effects on Cellular Adhesion, Signaling and Function"
- World Conference on Biomaterials, Hawaii, May 2000:
 - Workshop organizer and chair: "Space Programs advance Tissue Engineering"; presentation on "Three dimensional bone tissue constructs grown on resorbable bioactive carriers in a microgravity environment"
 - Invited Speaker, Workshop on "Technology Transfer": "Concepts at the origin of Orthovita"
 - Invited Speaker, Workshop on "Intrinsically Osteoinductive Biomaterials": "Bone formation initiated by bioactive glasses of narrow size range" (paper given by E. Schepers)
- University of Pittsburgh, Pittsburgh, Seminar, May 2000, "Biomaterials and Tissue Engineering – Engineering or Life Science?"
- 2000 NASA Microgravity Materials Science Conference, Huntsville, AL, June 2000, "Reactions and surface transformation of a bone-bioactive material in a simulated microgravity environment – An experimental and numerical study"
- Workshop on "Tissues, Biomaterials and Tissue Engineering", Singapore, June 2000 – Invited Speaker: i/ Bioceramics, ii/ Tissue Engineering, iii/ Biological performance of Materials
- Nanyang Institute of Technology, Singapore, Nanyang Distinguished Professor, June 2000
 - Seminar, School of Mechanical and Production Engineering: "Space Programs advance Tissue Engineering"
 - Seminar, Institute for Biomedical Engineering: "Biomedical Engineering – Integration, Education and Technology Transfer"
- Conference on "Microscopy and microanalysis", Philadelphia, August 2000, Invited paper (presented by Russ Composto): "Bioactive ceramic surfaces adsorb ligands and factors and stimulate cellular function".
- The third Annual Symposium on alternate bearing surfaces in total joint replacement, Philadelphia, October 2000, Invited paper and Session Chairman (Free paper session #2)
- Thirteenth International Symposium on Bioceramics, Bologna, Italy, November
 - Keynote speaker: "Space research advances tissue engineering and bioceramics"
 - Member, International executive committee,
 - Session chairperson "Tissue Engineering"
- NASA Biomaterials Workshop, Princeton, December 2000
 - Keynote Speaker "Space research advances tissue engineering and bioceramics"

2001

- 27th annual meeting of the Society for Biomaterials, St Paul, April 2001, Moderator, Symposium on "Scaffolding Materials for Bone Tissue Engineering"
- Fourteenth International Symposium on Bioceramics, Palm Springs, CA, November 2001
 - Panel discussion, by invitation "The challenge of technology transfer"
 - Member, International executive committee
 - Session chairperson "Tissue Engineering"

2002

- CIBA, Tarrytown, NY, January 2002, invited seminar, "Tissue engineering of musculoskeletal tissues"
- Engineering Tissue Growth Conference and Exposition, Pittsburgh, March 2002, invited presentation, "From scaffolds to cells as a novel tissue engineering paradigm"
- MedVest Symposium, Bensalem (Philadelphia), April 2002, Invited presentation, "Bioactive scaffolds for cartilage and intervertebral disc tissue engineering"

- MRS Spring meeting, San Francisco, April 2002, invited paper (given by Dr. El-Ghannam), "Surface modified resorbable bioactive glass for use in tissue engineering."
- DuPont and De Nemours Symposium on Medical Materials, Wilmington, July 2003, invited presentation, "Bone augmentation; Science and technology overview"
- Université Blaise Pascal, Clermont Ferrand, France, July 2002, Outside referee Ph.D. thesis, Mr. Y. Barbotteau,
- Université Blaise Pascal, Clermont Ferrand, France, July 2002, Invited seminar, "Bioactive Ceramics; the effect of surface reactivity on bone formation and bone cell function"
- Technische Hogeschool Twente, Twente, The Netherlands, October 2002, Outside referee Ph.D. thesis, Mr. R. Dekker
- Knowledge Foundation conference on Arthritis, Providence, RI, October 2002, invited presentation, "Tissue engineering of the intervertebral disc"
- Fifteenth International Symposium on Bioceramics, Sydney, Australia, November 2002
 - Invited speaker "Surface Chemistry influences tissue engineering outcomes"
 - Member, International executive committee
 - Session chairperson "Effect of materials on cell function"

2003

- Genzyme, Boston, MA, May 2003, invited seminar, "Bioactive scaffolds for cartilage and intervertebral disc tissue engineering"
- Kensey Nash, Exton (Philadelphia), PA, May 2003, invited seminar, "Bioactive scaffolds for cartilage and intervertebral disc tissue engineering"
- NATO Advanced Study "Learning From Nature How to Design New Implantable Biomaterials: From Biomineralization Fundamentals to Biomimetic Materials and Processing Routes". Alvor, Algarve, Portugal, October 2003
 - Member of a three person Scientific Committee (together with the chair and co-chair): Prof. Tadashi Kokubo (Kyoto University, Kyoto, Japan), Prof. Paul Ducheyne (University of Pennsylvania, Philadelphia, U.S.A) and Prof. Victor Bagratashvili (Russian Academy of Sciences, Moscow, Russia)
 - Lecture: Bioactive Glass Surface Changes and Bone Cell Function Are Related
 - Lecture: Implantable Xerogels for the Controlled Release of Biomolecules
 - Lecture: Industrial Experiences and Technology Transfer
- Sixteenth International Symposium on Bioceramics, Porto, Portugal, Member, International executive committee, November 2003

2004

- 50th Annual Meeting of the Orthopaedic Research Society, Chair, session on "Biomaterials" (only session on Biomaterials at the meeting), San Francisco, March 2004
- "Biomedical Engineering in Egypt", Cairo, March 2004 (invited, but declined)
- Seventh World Biomaterials Conference, Invited Chair, Symposium "The effect of engineered biomaterials on the molecular regulation of cells at the tissue/medical device interface", Sydney, May 2004
- Seventeenth International Symposium on Bioceramics, New Orleans, USA, December 2004
 - Member, International executive committee
 - Invited speaker, Controlled release from bioceramics
 - Chair, Symposium on "Recent developments"

2005

- ESF (European Science Foundation) Research Conference (the equivalent of Gordon Research conferences in the USA), Invited Speaker, Bioactive ceramics and glasses stimulate cell function through surface and solution mediated effects, Sant Feliu de Guixols, Spain, June 2005
- Member International Advisory Board, Eleventh Cimtec (Conferences Internationales Materiaux et Technologie), Acireale, Sicily, Italy, June 2005, 7th International Conference "Materials in clinical applications"
- Fifth International Symposium on Silanes and Others Coupling Agents, M. Lee et al., Toronto, June 2005, Self-Assembled Monolayers of Omega-Functional Alkylsilanes: A Platform for Understanding Cellular Adhesion at the Molecular Level" Toronto, June 2005
- Seoul National University, Seoul, Korea, Symposium on Biomaterials, Keynote speaker, August 2005
- Philadelphia Spine Research Symposium, Lead Speaker: "Biomaterials advances in spine procedures - present and future", Philadelphia, September 2005
- Expertissues, Antalya, Turkey, Keynote speaker: "Bioactive Materials in Tissue Engineering - Bioactive glasses and ceramics stimulate cell function through surface and solution mediated effects", October 2005
- Brainport, Symposium on International Mobility in Science, Invited Speaker "Biomedische techniek als spitsdomein in de ingenieurswetenschappen - Nanomaterialen, biotechnologie en klinische realisaties over de oceaan heen", New York, October 2005
- Third International Symposium on Apatite and Correlative Biomaterials, Wuhan, China, October 2005: Member, Scientific Advisory Committee (invitation to speak declined)
- Eighteenth International Symposium on Bioceramics, Kyoto, Japan, December 2005
 - Member, International executive committee,
 - Session chairperson "Tissue Engineering"

2006

- 10th International Conference, "Ceramics, cells and tissues - Materials for scaffolding of biologically engineered systems; Interfaces and interactions on a nanoscale", Italy, May 2006
 - President
 - Opening lecture, Bioactive ceramics stimulate cell function through surface and solution mediated effects
 - Chair, Panel discussion: Nanomedicine In Bone Reconstruction: Basic Science And Clinical Applications
 - Invited paper (by C. Knabe): Effect of rapidly resorbable calcium-alkali-orthophosphate bone substitute materials on the temporal expression of the osteoblastic phenotype in vitro
- Workshop "Scientific And Technological Promotion And Transfer From Research To Industry" at "Exposanità", 15 th Intern. Exhibition for Medical Innovation and Technology, Bologna, May 2006, Biomaterials Advances in Spine Procedures, Present and Future.

- NIH Bioengineering Consortium 6th Annual Bioengineering Research Partnership Annual Meeting. July, 2006. Bethesda, MD, Shapiro IM., Ducheyne P et al., Smart Substrates for a New Generation of Implants.
- Seminar, City University of New York, Dept. of Mechanical Engineering, September 2006, Bioactive materials in Tissue Engineering
- Symposium, Synergies in Regional and National Innovation Policies in the Global Economy”, organized by *The Board of Science, Technology, and Economic Policy - National Academy of Sciences and The Flemish Government – Department of Economy, Science & Innovation*, September 2006, Leuven, Belgium, Invited lecture: “Innovation through knowledge diffusion: University Based Entrepreneurship in the U.S.
- Seminar, Synthes, Westchester, PA, September 2006, Invited Seminar “Thin xerogel film on fracture fixation material for the controlled release of antibiotics”
- 2nd Marie Curie Cutting-Edge Conference “Recent advances on Polymeric based Systems for Controlled Delivery of Bioactive Agents: Applications in Tissue Engineering”, Alvor, Algarve, Portugal, October 2006, Invited lecture: “Nanostructural control of sol gels for controlled release of drugs and proteins”
- Seminar, East China University of Science and Technology, Engineering Research Center for Biomaterials, Shanghai, October 2006, Invited Seminar “Bioactive materials in Tissue Engineering”
- Nineteenth International Symposium on Bioceramics, Chengdu, China, October 2006,
 - Symposium Opening – Keynote Address: “The Effect of Bioactive Ceramics on Cell Function through Surface and Solution Reaction Pathways”
 - Member, International executive committee,
 - Session chairperson “Calcium Phosphate Ceramics”
- Symposium on Composites in Medicine - The Fifth Asian-Australasian Conference on Composite Materials (ACCM-5), Hong Kong, November 2006, Program Committee member
- 2nd Military Biomaterials Roadmap Workshop, New Brunswick, NJ, November 2006, Invited Discussant

2007

- Seminar, University of Connecticut, Institute of Materials Science, Storrs, CT , February 2007, “Bioactive materials in Tissue Engineering”
- Seminar, City University of New York, Department of Biomedical Engineering, March 2007, “Bioactive materials in Tissue Engineering”
- 32th Annual meeting of the Society for Biomaterials, Chicago, IL, April 2007, Symposium “Advances in Biomaterials Science: A Symposium by the Leaders of Biomaterials”, Invited Lecture: “Bioactive ceramics and glasses: reactivity, biological effects and tissue engineering use”
- Brazil-US Materials Science Workshop, NSF sponsored workshop, Gramado, RS, Brazil, April 2007, Invited lecture “Bioactive ceramics stimulate cell function through surface and solution mediated effects” (with J. Kim)
- International Symposium “Bioengineering and Regenerative Medicine”. Mulhouse (France), September 2007, Invited Speaker “Principles of ceramics bioactivity - In vitro and in vivo evidence, and applications in tissue engineering”
- Annual Meeting, Academy of Dental Materials, October 2008, Fort Lauderdale, FL, Invited lecture “Cell attachment to self assembled monolayers” (with C. Knabe).

2008

- Eighth World Biomaterials Conference, Amsterdam, May 2008
Symposium “The Last Frontier in Orthopaedics: Materials for Spinal Treatment”
 - Chair
 - Keynote speaker : Biomaterials Advances for Spine Procedures - Present and Future”
- Panel Member, Workshop on “Breakthrough Ideas” organized by the World Economic Forum and Harvard Business Review, New York, June 2008
- Panel Member and Presenter, Compartment Syndrome and Wound Dressing Panel at the Defense Science Board, Task Force on Improvised Explosive Devices, Medical Panel, Arlington VA, July 2008
- Society for Biomaterials Meeting on Translational Research, Chair of the panel, “Before the IPO: A Biomaterials Primer for Translation”, Atlanta, GA, September 2008
- Twenty first International Symposium on Bioceramics, Rio de Janeiro, Brazil, October 2008
 - Keynote Address: “The merger of devices and biologicals”
 - Member, International executive committee,
 - Session chairperson
- The 9th New Jersey Symposium on Biomaterials Science and Regenerative Medicine, New Brunswick, NJ, October 2008, Invited Speaker: “Calcium Phosphate Scaffolds for Bone Tissue Regeneration and Repair”
- Fourth Annual Philadelphia Spine Research Symposium, Philadelphia, PA, November 2008. “Biomaterials Advances for Spine Procedures – Present and Future”

2009

- Armed Forces Institute for Regenerative Medicine (AFIRM)“All Hands”, St. Petersburg, FL, January, 2009, Invited Speaker “Early stage treatment of compartment syndrome using polymer-sol-gel composite controlled delivery wound dressings”
- Thomas Jefferson University, Philadelphia, Seminar, Bioactive ceramics as Tissue Engineering Scaffolds, March 2009
- Seminar, Department of Bioengineering and Regenerative Medicine, University of Technology Twente, The Netherlands, “The merger of devices and biologicals”, March 2009
- First International Conference on Hybrid Materials, Tours, France, March 2009:
 - co-chairperson of one of the three parallel Symposia, the Symposium on “Biohybrids and Biomaterials”
 - Invited Speaker
- “Nanobio-materials and technologies for breakthrough in future medicine”, National Institute for Materials Science (NIMS) Conference, Invited lecturer, Tsukuba, Japan, July 2009
- 15th International Biomedical Science and Engineering Symposium, BIOMED 2009, Middle East Technical University, Güzelyurt, Northern Cyprus, Invited Speaker, 16-19 August 2009
- Invited speaker, New Jersey Technology council, Regional Commercialization Conference, Wilmington, DE, “Nanostructured bactericidal sol-gel thin films on percutaneous orthopaedic external fixator pins”

2010

- Invited seminar, US Army Institute for Surgical Research (USAISR), February 2010, "Nanostructured Sol Gels for use in Treatment and Mitigation of Biofilm Formation and in Biocompatible Wound Dressings for Chronic Pain Management"
- Invited seminar, Orthovita, Malvern, March 2010, Bioactive Materials in Tissue engineering"
- 12th International Ceramics Conference (CIMTEC), Montecatini - Terme, Italy, June 2010,
 - Invited speaker: Nanostructural control of bioceramics and the merger of devices with biologicals
 - Chair of the session : "Advances in biomaterials"
 - Co-author of the invited paper: Novel, rapidly resorbable bioceramic bone grafts produce a major osteogenic effect - the pre-clinical evidence
- Lectures on Engineering Discoveries, Inventions, and Startups - Penn Engineering Examples of Successful Commercialization of Research: "Concepts at the origin of Orthovita", November 2010
- Invited Seminar, Department of Orthopaedic Surgery, Philipps University, Marburg, Germany, "The merger of devices and biologicals - *A perspective on bone tissue engineering and infection treatment and prevention*", November 2010
- Invited Seminar, B. Braun, Aesculap A.G., Tütingen, Germany, "The merger of devices and biologicals - *A perspective on bone tissue engineering and infection treatment and prevention*", November 2010
- 3rd Annual Congress of Regenerative Medicine & Stem Cell-2010 "From Bench to Bedside", Member, Scientific Advisory Board, December, 2010, Shanghai, China

2011

- Second International Conference on Hybrid Materials, Strasbourg, France, March 2011
 - Co-chairperson of one of the three parallel Symposia, the Symposium on "bioinspired, biomimetic materials, biomineralisation, biosystems (sensors, catalysts, vectors, imaging), green materials, synthetic/biopolymer conjugates"
 - Chairperson of the session: Biomimetic materials and biomineralisation
 - Featured Speaker: "Long term, controlled release from thin, nanoporous sol gels"
- Military Infectious Disease Research Program - Defense Health Program enhanced - Wound Symposium, San Antonio, May 2011, Invited presentation: "Infected fractures- treatment and mitigation of biofilm formation"
- PacRim 9 - The 9th International Meeting of Pacific Rim Ceramic Societies, Cairns, Australia, July 2011
 - Keynote speaker "Bioceramics: merging materials science with biology"
- Invited Seminar, University of Hong Kong, Hong Kong, China, "The merger of devices and biologicals - *A perspective on bone tissue engineering and infection treatment and prevention*", July 2011
- International conference "*Biomaterials and Implants: Prospects and Possibilities in the New Millennium*", Central Glass & Ceramic Research Institute (CGCRI), Kolkata, India, July 2011 (visa issues interfered with travel)
 - Keynote speaker "Bioceramics and the merger of devices with biologicals"
- International Symposium on Biomaterials, Alexandria, Egypt, September 2011, Invited Keynote (Symposium postponed by virtue of the overall situation in the Middle East).

2012

- Ninth World Biomaterials Conference, Chengdu, China, June 2012
Symposium "Inorganic materials for long-term controlled release of growth factors and other large biological molecules"
 - Keynote speaker "Inorganic materials for long-term controlled release of growth factors and other large biological molecules"

2013

- Princeton, March 2013: Invited lecture to the Bioengineering class: "Inorganic Materials for Long Term Controlled Release of Growth Factors and other Biological Molecules"
- National University of Science and Technology -"MISIS", Moscow, June 2013, Workshop by invitation "Highly wear resistant bioceramics"
- International Consensus Development Meeting on Periprosthetic Joint Infection, July 31-August 1, 2013, Thomas Jefferson University, Philadelphia, Delegate, Group 6, Prosthesis Selection
- International Workshop on Biomaterials, State University of São Paulo, São Pedro, Brazil, August 2013, Keynote Address "Biomaterials - Merging Materials Science with Biology"
- FDA, Silver Spring, MD, September 2013, Invited speaker "Bone Seminar Workshop Series" – "Principle of ceramic bioactivity – *In vitro* and *in vivo* evidence and applications in Tissue Engineering"
- 25th Bioceramics Meeting, Bucharest (Romania), November 2013, Keynote "Nanoporous bioceramics for the controlled release of drugs and growth factors - Bioceramics in today's cost conscious health care environment."
- Skoltech, Moscow (Russian Federation), November 2013, Invited seminar speaker : "Biomaterials - Merging materials science with biology"

2014

- AAOS/ORS Research Symposium "Musculoskeletal Infection: Where are we in 2014?", May 2014, Invited Speaker: "Controlled antibiotic release from nanoparticles and micron-thin nanoporous implant coatings"
- CIMTEC, Montecatini, Italy "Medical Applications of Novel Biomaterials and Nanobiotechnology", June 2014, Conference co-chair
- CDMRP Joint Program Committee - 2 Meeting (JPC-2) (*In-Progress Review*), October 2014, Ft Detrick, MD, Invited Speaker: "Infected Fractures: Treatment and Mitigation of Biofilm Formation"
 - State Key Lab of Polymer Materials Engineering of China, Sichuan University, Chengdu, China, Visiting Professor (Programme of Introducing Talents of Discipline to Universities, Ministry of Education of China), December 2014
 - Lecture 1: Biomaterials - Merging Materials Science with Biology
 - Lecture 2: Nanoporous Bioceramics for the Controlled Release of Drugs and Growth Factors
- National Engineering Research Center for Biomaterials, Sichuan University, Chengdu, China, Invited seminar speaker (December 2014): "Bioceramics - Merging Materials Science with Biology"

2015

- Fourth International Conference on Hybrid Materials, Barcelona, Spain, March 2015
 - Co-chairperson of one of the three parallel Symposia, the Symposium on "Biohybrids and Biomaterials"
 - Invited Plenary Speaker: "Long term, controlled release from mesoporous silica sol gel gels and nanospheres"

- University of Pennsylvania Interdisciplinary Pain Seminar Series (Invited Seminar Speaker, April 2015): "Controlled Delivery of Local Anesthetics in vivo using Xerogel and Xerogel Composites for use in Biocompatible Wound Dressings for Chronic Pain Management and in Surgical Pain Control"
- Founders Award lecture, Annual meeting of the Society for Biomaterials, Charlotte, NC, April 2015: "Biomaterials – the merger of devices with biologicals"
- Invited speaker, 14th Conference of the Brazilian Materials Research Society, Rio de Janeiro, September/October 2015, "Biomaterials: Merging Materials Science with Biology"

2016

- "Leveraging Early Stage Funding for your Commercialization Goals", Invited Speaker, Seminar organized by Penn Center for innovation, Philadelphia, February 2016, (With A. Green, Benjamin Franklin Technology Partnership, Philadelphia)
- 28th International Symposium on Ceramics in Medicine, Charlotte, NC, October 2016, Keynote "Bioceramics for unique controlled release concepts"
- Singh Nano Week 2016 "Where Nanotechnology Meets Innovation", Philadelphia, October 2016, Invited lecture: "Controlled Antibiotic Release from Micron-thin Nanoporous Implant Coatings and Nanoparticles; Penn's spin-out: XeroThera"

CONTRIBUTED PAPERS:

1974

- Sixth Annual International Biomaterials Symposium, Clemson, April 1974: "Fatigue fractures of the femoral component of Charnley and Charnley - Mueller type total hip prostheses."
- International Congress of the Belgian Society of Orthopaedic Surgery on "Implants in Orthopaedic Surgery," Brussels, May 1974: "Skeletal Fixation by Metal Fiber Coating on the Implant."
- Joint Meeting of the division of orthopaedic surgery of the University of Leuven and Nijmegen (The Netherlands): Nijmegen, November 1974: "Potential of Anchoring Implants to the Skeleton by Ingrowth in Surface Pores of the Implant."

1975

- Joint meeting of the Belgian and Dutch Society of Electron Microscopy, Brussels, March 1975: "The Use of the SEM and the EXDA in Biomaterials Research: Fatigue Fractures - Ingrowth Studies."
- Fourth European Symposium on Powder Metallurgy, Grenoble (France), May 1975: "Development of Orthopaedic Implants with a Porous Surface Made by Isostatic Compaction of Metallic Fibers."

1977

- 23rd Annual Meeting of the Orthopaedic Research Society, Las Vegas, February 1977: "The Influence of a Functional Dynamic Loading on Bone Ingrowth into Surface Pores of Orthopaedic Implants."
- 3rd Annual Meeting of the Society for Biomaterials, New Orleans, April 1977: "Factors Governing the Mechanical Behavior of the Implant-Porous Coating-Spongy Bone Interface."
- 3rd Annual Meeting of the Society for Biomaterials, New Orleans, April 1977: The Mechanical Behavior of the Intracondylar Cancellous Bone of the Femur."

1978

- Combined Meetings of the European Societies of Biomaterials and Biomechanics, May 1978
 - "Failure of UCI Knee Arthroplasty due to Loosening and Permanent Deformation of the Tibial Component."
 - Chairman of the Session: "Biomechanics of Osteosynthesis."
- Belgische Vereniging voor Orthopedie en Traumatologie, Leuven, Juni 1978: "Skeletfixatie van implantaten; klinische en experimentele bevindingen."
- "Mechanical Properties of Biomaterials," Conference organized by the European Society for Biomaterials and the Biomaterials Group, England, Keele University, September 1978: "The Mechanical Behavior of Porous Metal Fiber Structures Allowing Bone Ingrowth."
- First International Conference on Isostatic Pressing, Loughborough University of Technology, England, September 1978: "Isostatically Compacted Metal Fiber Porous Coatings."

1979

- 5th Annual Meeting of the Society for Biomaterials, Clemson, South Carolina, April 1979.
 - Presentation "The Effect of Hydroxyapatite Impregnation on Bonding of Porous Coated Implants"
 - Chairman of the session "Bonding to Hard Tissue"
- Second meeting of the European Society for Biomechanics, Strasbourg, September, 1979: Short-Term Bonding Behavior of Bioglass Coated on Metal Implants.
- Mechanical and microscopical evaluation of porous and bioreactive implant materials, Stoke-On-Trent, North Staffordshire Health Authority, December 1979.

1980

- First World Biomaterials Conference, Vienna, April 1980
 - paper: "Metal Fiber Reinforced Composite"
 - session chairman: Ceramics-Tissue Interactions

1981

- ASTM-Symposium "Titanium and its Alloys for Surgical Implants," May 1981
 - paper: "Titanium Implants with Porous Structures for Bone Ingrowth: A General Approach."
- Seventh Annual Meeting of the Society for Biomaterials, Troy, New York, May 1981
 - paper: "Pressure Sintered Porous Coatings for Bone Ingrowth"
 - paper: "Mechanical and Implant Properties of Bioglass Composites"
- Second European Conference on Biomaterials, Goteborg, Sweden, August 1981
 - paper: "Porous Wire Coatings for Fixation of Permanent Orthopaedic Implants"

1982

- Third European Conference on Biomechanics, The Netherlands, January 1982.
 - member of the program committee
 - session chairman: Hip Implants
 - paper: "A Reproducible Fatigue Test Method for the Femoral Component of Total Hip Prostheses"

- Eighth Annual Meeting, Society for Biomaterials, Orlando, Florida, April 1982
 - paper: "Biocompatibility of Porous Coated Implants: In Vitro Results"
 - session chairman: Biological Response to Metals
- World Congress on Medical Physics and Biomedical Engineering, Hamburg, Germany, 8-11 September 1982
 - paper: "Biological Fixation of Skeletal Implants"
 - session chairman: Hip Prostheses

1984

- 30th Annual ORS, Atlanta, February 1984,
 - paper: Surface analysis of titanium and its alloys: a mechanism for the Ti-ion release in vivo
 - paper: The initial stability of wire mesh porous coated tibial components of knee prosthesis
- Second World Conference on Biomaterials, Washington, DC, April 1984
 - paper: Physical and material properties of hydroxyapatite coatings sintered on titanium
 - paper: The effect of surface conditions and environment on the Ti-ion release
 - session chairman: Bioactive Ceramics

1985

- Eleventh Annual Meeting of The Society for Biomaterials, San Diego, April 1985, "A Porous Flexible Titanium Material for Revision Surgery"
- Fifth European Conference on Biomaterials, Paris, September 1985
 - paper: "High porosity, flexible titanium felt: a new method for reconstructive surgery"
 - session chairman: Alloys for orthopaedic and dental application

1986

- Orthopaedic Research Society Meeting, New Orleans, February 1986. Paper: "Structural Analysis of Hydroxyapatite Coatings on Titanium"
- 12th Annual meeting of the Society for Biomaterials, Minneapolis, May 1986;
 - Paper: "Enhanced metal ion release from titanium and its alloys",
 - Session Chairman: Hydroxyapatite Coatings

1987

- 33th Orthopaedic Research Soc. Meeting, San Francisco, January 1987. Chairman: session on: Biomaterials, Paper (presented by K. Healy): The effect of hydroxyapatite coatings on the metal ion release from porous titanium and cobalt - chromium alloys.
- 13th Northeast Bioengineering Conference, Philadelphia, March 1987, Chairman: Biomaterials, Papers (3): presented by D. Kohn, D. Wolfarth, C. Cohen
- 13th Annual Meeting Soc. Biomat., New York, June 1987 Chairman, session: Porous Ingrowth; Papers (2): presented by D. Kohn: 1/Acoustic emission analysis of fatigue phenomena in Ti-6Al-4V Implant Alloy, 2/ Fatigue properties of cast and heat treated Ti-6Al-4V alloy for hip prostheses

1988

- 34th Orthopaedic Research Society Meeting, Atlanta, February 1988 Paper: "The effect of plasma spraying on the structure and properties of calcium phosphate ceramics
- 3rd World Biomaterials Conference, Kyoto, Japan, April 1988, Papers: 1/Bioactive calcium phosphate ceramic linings on porous metal coatings for bone ingrowth. 2/In vivo and in vitro fractography of PMMA bone cement. Session chairman: New developments in metals for orthopaedic use
- 1st International Bioceramics Symposium, Kyoto, Japan, April 1988, Research paper: The effect of plasma spraying bioactive ceramics coatings on the ion release from metallic substrates
- 6th World Conference on Titanium, Cannes, France, June 1988, Papers: 1/ Thermochemical treatments of post-sintered Ti-6Al-4V for orthopaedic implants, 2/ In vitro and in vivo modeling of the biocompatibility of titanium, 3/Acoustic emission as a means of monitoring tensile and fatigue phenomena in Ti-6Al-4V implant alloy
- IADR, Leuven, Belgium, September 1988; paper by E. Schepers

1989

- Orthopaedic Research Society Meeting, February 1989, Las Vegas: 2 presentations by J. Beight, orthopaedic resident
- Society for Biomaterials Meeting, Orlando, April 1989; eight presentations from my group; session chairman: bioactive ceramics
- American Chemical Engineering Society, Philadelphia, July 1989, Paper by K. Healy: Surface reactions of titanium in biological fluids.
- 8th European Conf. on Biomaterials, Heidelberg, Germany, Sept. 1989
 - paper: "Interfacial tissue response of glass compositions with reduced reactivity" (E. Schepers)
 - paper: "Incipient fatigue crack propagation in porous coated devices"
 - session chairman: Calcium phosphate materials
- 2nd International Symposium on Ceramics in Medicine, Heidelberg, Germany, September 1989.
 - paper: "Calcium phosphate ceramic coatings on metallic porous surfaces".
 - chairman: "Coatings, cements, composites"

1990

- Orthopaedic Research Society Meeting, February 1990, New Orleans; 4 papers: (own presentation: one; also presentations by D. Kohn, B. Evans, J. Mitchell)
- Society for Biomaterials Meeting, Charleston, May 1990: 7 presentations from my group; session chairman.
- Annual Mtg., American Ceramic Society, Houston, April 1990; "Spatial variation of electronic structure and chemical reactivity of TiO₂ thin films" (presentation by D. Bonnell)
- First World Biomechanics Conference, San Diego, August 1990; "Real time monitoring of interfacial failure of porous coated Ti-6Al-4V with acoustic emission" (presentation by D. Kohn).
- Biointeractions '90, Oxford, England, August 1990
 - The mechanisms of passive dissolution of titanium in biological environments
 - Bioactive glass particles stimulate bone tissue formation in mandibular reconstruction.

- Second International Conference on Tissue Integration, Mayo Clinic, Rochester, MN, September 1990: Mechanical failure modes and acoustic emission monitoring of failure in porous coated Ti-6Al-4V (presentation by D. Kohn).
- ASTM - Conference on Particulate Material, San Antonio, October 1990.
 - Identification of possible mechanisms causing coating detachment in porous coated Ti-6Al-4V implants (presentation by D. Kohn).
 - A comparison of the rat intramuscular implant model and rat subcutaneous air pouch model in the assessment of biocompatibility (presentation by J. Cuckler).
 - Biocompatibility of PMMA with and without barium sulfate in the rat subcutaneous air pouch model (presentation by M. Lazarus).
- Tenth Anniversary Meeting of the Bioelectrical Repair and Growth Society Meeting, Philadelphia, October, 1990.
 - Zeta potential studies in hydroxyapatite.
 - Field distributions in the rat tibia with and without a porous implant during electrical stimulation: a parametric modeling (presentation by S. R. Pollack).
- Third International Symposium Ceramics in Medicine, Terre Haute, IN, Nov. 1990: The effect of phase composition on the *in vitro* dissolution of calcium phosphate ceramics (presentation by S. Radin).

1991

- 37th Annual Meeting of the Orthopaedic Research Society, Anaheim, CA, February 1991: 2 presentations from my group.
- IADR, March 1991, Acapulco, Mexico (presentation by P. Berthold)
- American Society for Artificial and Internal Organs (ASIAO) Annual Meeting, Chicago, April 1991 (by K. Healy).
- 17th Annual Meeting of the Society for Biomaterials, Scottsdale, AZ, May 1991: 5 presentations from my group; session chair.
- Scanning microscopy, 1991, Washington, D.C., May 1991, 1 paper: presentation by T. Topoleski.
- Bioelectrical Repair and Growth Society, Scottsdale, AZ, September 1991: R. Kowalchuk et al.: "Zeta potential changes in calcium deficient hydroxyapatite due to solution composition and steeping time."

1992

- 38th Annual Meeting of the Orthopaedic Research Society, Washington DC, February 1992: 5 presentations from our group (Cohen, Gelb, Naidu (2), Nangle).
- Surface Science Symposium, Minneapolis, March 1992 (Healy).
- 4th World Biomaterials Conference, Berlin, Germany, April 1992: 4 presentations from my group (Cohen, Wolfarth, Bianco, Ducheyne).
- ASTM Symposium on Mechanical Behavior of Biomaterials, Pittsburgh, May 1992 (Wolfarth).
- ASTM Meeting on Fretting Corrosion, Miami, November 1993: 3 Presentations from my group (Radin (2), Cuckler)
- Fifth International Ceramics in Medicine Symposium, Kyoto, November 1992: one presentation, session chair

1993

- 39th Annual Meeting of the Orthopaedic Research Society, San Francisco, February 1993: 4 presentations from my group (Bianco, Teisch (2), Kitay).
- Annual Meeting of the Society for Biomaterials, Birmingham, AL, April 1993: 3 presentations from my group (Bianco, El-Ghannam, Effah).
- Sixth International Ceramics in Medicine Symposium, Philadelphia, November 1993: conference organizer, author or co-author of thirteen presentations.
- Fall Symposium, Materials Research Symposium, Boston, December 1993: one presentation (By A. El-Ghannam).

1994

- 40th Annual Meeting of the Orthopaedic Research Society, New Orleans, February 1994: 2 presentations from my group (Campbell, Moore).
- Annual Meeting of the Society for Biomaterials, Boston, April 1994: 6 presentations from my group (Bianco, Radin, Garcia, Marcolongo, Christiansen, Smith); one presentation in collaboration with Li (Univ. of Leiden)).
- ASTM Meeting on Medical Applications of Titanium and its Alloys, The Material and Biological Issues, Scottsdale, AZ, November 1994: 5 presentations from my group (Kohn, Wolfarth, Bianco, Smith, Healy)

1995

- 41th Annual Meeting of the Orthopaedic Research Society, Orlando, February 1995: 1 presentation from my group (Radin).
- Annual Meeting of the Society for Biomaterials, San Francisco, March 1995: 7 presentations from my group (Nicoll, Radin (2), Santos, El-Ghannam, Smith, Marcolongo)
- Cells and Materials annual meeting, Houston, May 1995: presentation by E. Schepers (Catholic University of Leuven, Belgium): Bioactive glass granules of narrow size range elicit differentiation of osteoprogenitor cells.
- Second International conference on Tissue Engineering, University of California, San Diego, August 1995: "A spinning disk device to examine receptor - mediated cell attachment to bioactive and surface-reactive materials" (A. Garcia et. al.)
- Surfaces in Biomaterials '95: Minneapolis, September 1995: 2 presentations:
 - M. Marcolongo: Surface reaction layer formation of bioactive glass fiber/ polymeric composites in simulated body fluids with and without proteins;
 - H. Lu: Particle electrophoresis of 45S5 bioactive glass particles in simulated physiological electrolyte solutions

1996

- Biotechnology working group meeting, NASA, Houston, February 1996: "Bioactive glass particles as microcarriers in a microgravity environment"
- World Conference on Biomaterials, Toronto, May 1996: 13 presentations from my group and/or with collaborators from other universities (Radin, El-Ghannam (2), Marcolongo, Li, Santos, Garcia, Smith, Effah, Baldick, Tan, Schepers (2))
- Mechanics and Materials Conference, ASME, Baltimore, June 1996: paper by A. Garcia
- Surfaces in Biomaterials Symposium, Phoenix, Sept. 1996: paper by Dr. El-Ghannam et al.
- Annual Mtg of the American Vacuum Society, Philadelphia, October 1996:
 - E. Effah: Porous Bioactive Glass (45S5) Templates for the In Vitro Synthesis of Bone-Like Tissue.
 - H. Lu: Particle electrophoresis of 45S5 Bioactive Glass Granules in a simulated body fluid

- ASME International Mechanical Engineering Congress, Atlanta, November 1996:
 - Paul Ducheyne, Hongxia Gao, Ahmed El-Ghannam, Irving Shapiro and Portonovo Ayyaswamy: "The use of bioactive glass particles as microcarriers"
 - Andres Garcia, Paul Ducheyne, David Boettiger, "Effects of applied detachment force, fibronectin adsorption, and surface reaction stage on initial cell adhesion to bioactive glass"
- 9th International "Ceramics in Medicine" Symposium, Otsu, Japan, Nov. 1996:
 - "Bioactive glass and hydroxyapatite promote cell function along different time lines"
 - "Long term clinical evaluation of bioactive glass particles of narrow size range" (by E. Schepers)

1997

- 43th Annual Meeting of the Orthopaedic Research Society, San Francisco, February 1997: 1 presentation from my group (Santos)
- 75th Annual Meeting of the International Association for Dental Research, Orlando, March 1997: 2 presentations with collaborators (Schepers and Barbier)
- Annual Meeting of the Society for Biomaterials, New Orleans, April 1997: 8 presentations (from my group and collaborations) (J. Gan, H. Lu, Q. Qiu, A. Garcia, P. Li, S. Radin (2), Schepers)
- 10th International "Ceramics in Medicine" Symposium, Paris, Oct. 1997: two papers from my group (Radin, Santos), one paper in association with Dr. Schepers
- International Mechanical Engineering Congress and Exposition, Dallas, Nov 1997, "Experimental and numerical studies of bone marrow stromal cell culture on microcarriers in a rotating wall vessel" (Q.Q. Qiu)

1998

- 44th Annual Meeting of the Orthopaedic Research Society, New Orleans, March 1998; paper by J.C. Gan
- 24th annual meeting of the Society for Biomaterials, San Diego, April 1998: 6 papers from my group (W. Lai, J. Gan, T. Livingston, E. Effah, H. Lu, S. Radin)
- Cimtec 1998, 9th International Conference on Modern Materials and Technologies, Florence Italy, June 1998, A. Shenhar, I. Gotman, S. Radin and P. Ducheyne, Microstructure and Fretting Behavior of Hard TiN-based Coatings on Surgical Titanium Alloys
- 11th International "Ceramics in Medicine" Symposium, New York, Nov. 1998: three papers from my group (Radin, Qiu, Lai), one paper in association with Dr. Schepers
- 1998 NASA Microgravity Materials Science Conference, Huntsville, AL, July 1998, paper by S. Radin "Reactions and surface transformation of a bone-bioactive material in a simulated microgravity environment"
- 1998 ASME IMECE Conference, Anaheim, CA
 - H. Gao, P.S. Ayyaswamy, H.H. Hu, M. Zhu and P. Ducheyne "Numerical study of mass transfer associated with multiple microcarriers in a rotating wall vessel"
 - Q.Q. Qiu, P. Ducheyne and P.S. Ayyaswamy "Growth and differentiation of osteoblasts on hollow biocompatible ceramic microcarriers under microgravity conditions"

1999

- 45th Annual Meeting of the Orthopaedic Research Society, Anaheim, February 1999; paper by T. Livingston
- 37th Aerospace Sciences Meeting and Exhibit, January 11-14, 1999, Reno, NV, paper by S. Radin, The effect of simulated microgravity on the reactions and surface transformation of a bone bioactive material
- Workshop on Tissue Engineering, Gene Delivery, and Regenerative Healing (Kiawah Island, Feb. 17-21, 1999), Implantation of in vitro synthesized bone leads to return of mechanical function of bone, paper by T. Livingston
- 25th annual meeting of the Society for Biomaterials, Providence, RI, April 1999: 6 papers from my group (J. Gan, E. Effah (2), H. Lu, S. Radin, Q-Q. Qiu)
- Twelfth International Symposium on Bioceramics, Nara, Japan, October, contributed presentations, "Mechanical and histological evaluation of a tissue engineered bioactive scaffold in vivo" (T. Livingston) and "Serum proteins affect the surface reaction layer on bioactive glass" (E. Effah)
- Thirty fifth Annual IADR Meeting, Montpellier, France: "Comparative study of Biogran, perioglass, Goretex Membrane in Approximal Periodontal Defects in the Beagle Dog" (Barbier et al.) and "Guided Tissue Regeneration versus two types of Bioactive Glass Particles in the Treatment of Furcation Type II Defects in the Beagle Dog" (E. Schepers et al.)
- 1999 ICEME meeting, Memphis, TN, "Motion of microcarriers in rotating wall vessels" (H. Gao, P. Ayyaswamy, P. Ducheyne) and "Bioactive and degradable composite microcarriers for 3D bone tissue engineering in simulated microgravity" (Q-Q Qiu, P. Ducheyne, P. Ayyaswamy).
- MRS, Boston, December, "Removal pathway of bioactive glass resorption products from the body" (W. Lai, P. Ducheyne, J. Garino)

2000

- NASA Biotechnology Investigators Meeting, Houston, February 2000, Invited presentation (given by P. Ayyaswamy) Three dimensional bone growth on hollow bioactive ceramic spheres in a microgravity environment
- World Conference on Biomaterials, Hawaii, May 2000: 6 presentations from my group and/or with collaborators from other universities (Lai, Qiu (2), Radin (2), Schepers)
- Thirteenth International Symposium on Bioceramics, Bologna, Italy, November, contributed presentations, "Physiological removal of silicon from bioactive glass" (W. Lai), "3-D Bone tissue engineering with bioactive, resorbable microcarriers" (Q. Qiu) and "Production and evaluation of hydroxyapatite – tricalcium phosphate functionally graded coating" (with R. Roop Kumar and M. Wang, Nanyang Technological institute, Singapore)

2001

- 7th International Conference on the Chemistry and Biology of Mineralized Tissues, Ponte Vedra Beach, FL, January 200, A. El-Ghannam et al., "RGD-Peptide Covalently Linked to Biomaterial Surface Promotes Osteoblast Adhesion and Cytoskeletal Organization"
- 47th Annual Meeting of the Orthopaedic Research Society, San Francisco, February 2001; two papers (Radin et al.; Lai et al.)
- 27th annual meeting of the Society for Biomaterials, St Paul, April 2001: 3 papers from my group (J. Yao, W. Augenbaugh, H. Gao)
- Fourth Combined Meeting of the Orthopaedic Research Societies of the USA, Europe, Japan and Canada, Rhodes (Greece), June 2001: 2 papers from my group (J. Yao and J.Gan first authors)
- Fourteenth International Symposium on Bioceramics, Palm Springs, CA, November 2001, 3 papers from my group (Drs. El-Ghannam and Radin: first authors)

2002

- American Physical Society Meeting, Indianapolis, March 2002, R. Composto et al., "Cell Spreading and Function on Peptide Modified Organic Surfaces",
- 28th Annual meeting of the Society for Biomaterials, Tampa, FL, April 2002: 4 papers from my group (A. Cavalcanti, J. Yao, El-Ghannam and Radin)

2003

- 29th Annual meeting of the Society for Biomaterials, Reno, NV, April 2003: 4 papers from my group (J. Yao, G. Silva, S. Radin, M. Lee)
- Bone and Mineral Society Annual Meeting, Minneapolis, MN, September 2003, G. Reilly et al., Differential osteogenic effects of 45S bioactive glass on rat and human mesenchymal stem cells, and V. Grigoriou et al., Osteoblast apoptosis and survival is regulated by integrin-mediated surface attachment.
- MRS Spring meeting, Boston, December 2003, (G. Toworfe), "Effect of surface activated poly(dimethylsiloxane) on fibronectin adsorption and cell function"

2004

- American Physical Society Meeting, April 2004, R. Composto et al., "Cell Spreading and Function on Peptide Modified Surfaces"
- Seventh World Biomaterials Conference, Sydney, May 2004: two papers from my group (S. Radin, M. Lee)
- Society for Biomaterials (SFB), Philadelphia, September 2004 (George Toworfe)
- Biomedical Engineering Society, Annual Meeting, Philadelphia, September 2004 (Mark Lee)
- Bioceramics 17, New Orleans, December 2004 (Jun Yao)

2005

- 30th Society for Biomaterials (SFB), Annual meeting, Memphis, April 2005, 6 presentations from my group or in collaboration (M. Lee, J. Yao, S. Radin, S. Radin, G. Silva, C. Knabe)
- European Tissue Engineering Society, Munich, August 2005, G.A. Silva et al., Starch-based microparticles as carriers for the delivery of platelet-derived growth factor aimed to stimulate the proliferation of osteoblastic-like cells.
- American Association of Hip and Knee Surgeons, September 2005, J. Parvizi et al., Thin silica xerogel films on Titanium for controlled release of antibiotics
- Eighteenth International Symposium on Bioceramics, Kyoto, Japan, December 2005, 3 presentations from my group (Toworfe, Radin, Silva)

2006

- ASBMR, American Society for Bone and Mineral Research, March 2006, V. Antoci Jr. et al., Antibiotic Integral to Implant Surface Inhibits Bacterial, but not Osteoblast Colonization; abstract in J Bone Mineral Res., 21, S433 (2006)
- 52nd Annual Meeting of the Orthopaedic Research Society, Chicago, March 2006, 1 presentation from my group (Mark Lee)
- 31th Annual meeting of the Society for Biomaterials, Pittsburgh, PA, April 2006: 4 papers from my group (T. Chen, G. Toworfe, S. Radin, M. Ni)
- 16th Open Annual Scientific Meeting of the Musculoskeletal Infection Society., August, 2006, Lake Tahoe, CA, Antoci V Jr. et al., Covalently Attached Vancomycin Provides a Nanoscale Antibacterial Surface.
- 28th Annual Meeting of American Society of Bone and Mineral Research (ASBMR), September, 2006, Philadelphia, Antoci V Jr. et al., Antibiotic Integral to Implant Surface Inhibits Bacterial, but not Osteoblast Colonization.
- 19th Annual Symposium of the International Society for Technology in Arthroplasty (ISTA), October, 2006, New York, NY: two papers
 - Antoci V Jr. et al., Vancomycin Stably and Permanently Bonded to Implant Inhibits Bacterial Surface Colonization and Infection Development.
 - Antoci V Jr. et al., Antibiotics Intrinsic to Implants Provide Hope.
- 37th Annual Meeting of the Eastern Orthopaedic Association, October, 2006, Boca Raton, F, Antoci V Jr, et al. Antibiotic Modified Implant Surface is Stable, Microbicidal, Osteocompatible.
- 44th Annual Meeting of the Infectious Disease Society of America (IDSA), October, 2006, Toronto, Canada, Antoci V Jr, et al., Covalently Attached Vancomycin in Engineering a New Implant with Antibacterial Properties.
- Nineteenth International Symposium on Bioceramics, Chengdu, China, October 2006: 4 papers from my group or in collaboration (first authors: S. Radin, T. Chen, G. Berger, C. Liu)

2007

- 53rd Annual Meeting of the Orthopaedic Research Society, San Diego, CA, February 2007, 4 papers from my group or in collaboration (S. Radin, T. Chen, J. Parvizi (Jefferson University), V. Antoci, Jr. (Jefferson University))
- 32th Annual meeting of the Society for Biomaterials, Chicago, IL, April 2007: 3 papers from my group (T. Chen, S. Radin, M. Ni)
- Eastern Orthopaedic Association EOA and Southern Orthopaedic Association SOA Combined meeting, Victoria, British Columbia, Canada. August 1-4 2007, Antoci V, Radin S, Parvizi J, Ducheyne P. Sol-gel delivered vancomycin prevents periprosthetic infection.

2008

- 54th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, March 2008, 4 papers from my group and in collaboration (C. Adams, V. Antoci, C. Knabe and C. Cohen (Thomas Jefferson University, Charité Medical University and Gentis, Inc.))
- Eighth World Biomaterials Conference, Amsterdam, May 2008, 4 contributed papers from my group and in collaboration (S. Radin (2), C. Knabe and C. Cohen (Thomas Jefferson University, Charité Medical University and Gentis, Inc.))
- Society for Biomaterials Meeting on Translational Research, Atlanta, GA, September 2008, C. Knabe et al., *In vitro* intracellular signaling studies of calcium phosphate bone grafting materials predict in vivo tissue growth
- Eastern Orthopaedic Association Meeting, Las Vegas, October, 2008, A. Aiyer et al., *S. epidermidis* remains susceptible to a nanoscale, antibiotic modified titanium surface after multiple rechallenges.
- 26th Annual Army Science Conference, Orlando, Florida, December, 2008, J. Kim et al., Early stage treatment of compartment syndrome using polymer-sol-gel composite growth factor delivery wound dressings

2009

- 34th Annual meeting of the Society for Biomaterials, San Antonio, TX, April 2009: 5 papers from my group or in collaboration (S. Bhattacharyya, H. Qu, M. Costache, J. Kim, C. Knabe)

- Third Military Health Research Forum, Chronic Pain Treatment by Controlled Release of Local Anesthetics from Biocompatible Wound Dressings, D. Devore et al, Kansas City, August/September 2009

2010

- 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA, March 2010, one paper in collaboration (C. Cohen, Gentis, Inc., Wayne, PA)
- 35th Annual meeting of the Society for Biomaterials, Seattle, WA, April 2010: 4 papers from my group or in collaboration (S. Bhattacharyya, H. Qu, J. Kim, G. Nazareth (Gentis, Inc., Wayne, PA))

2011

- 35th Annual meeting of the Society for Biomaterials, Orlando, FL, April 2011: S. Bhattacharyya, H. Wang, P. Ducheyne: "Polymer coated mesoporous silica controlled release nanoparticles for macromolecules"

2012

- Annual Orthopaedic Research Society meeting, San Francisco, February 2012, Paper entitled Prevention of Pin Tract Infection in External Fixation using Bactericidal Sol-Gel Thin Films in vivo (by "H Qu, C. Knabe, S. Radin, J. Garino, P. Ducheyne,)
- 2012 Military Health System Research Symposium, 13-16 August 2012, Fort Lauderdale, 2 presentations:
 - Bactericidal Thin Sol-Gel Films Prevent Peri-Prosthetic and Pin Tract Infection
 - Polycarbonate-Silica Biodegradable Composites for Controlled Drug Delivery Wound Dressings and Tissue Regeneration Scaffolds
- The 28th International Conference of The polymer Processing Society, PPS-28, December 11-15, Thailand. *Morphology variations of polymer-xerogel composites during melt extrusion processing and the controlled release of cephalixin*, Rong Chen, Haibo Qu, Shaoyun Guo, and Paul Ducheyne

2013

- Annual meeting of the Society for Biomaterials, Boston, MA, April 2013: 4 papers from my group (S. Bhattacharyya, H. Qu (2), T. Briggs)

2014

- Annual meeting of the Society for Biomaterials, Denver, CO, April 2014: 2 papers from my group (S. Bhattacharyya, T. Briggs)
- Military Health System Research Symposium, 18-24 August 2014, Fort Lauderdale, "Bactericidal Sol-Gel Thin Films Mitigate Osteomyelitis Development"

2015

- Annual meeting of the Society for Biomaterials, Charlotte, April 2015: 2 papers from my group (H.Qu, T. Briggs)

2016

- Annual Orthopaedic Research Society meeting, Orlando, March 2016, Paper entitled "Micron-Thin Bactericidal Sol-Gel Films for the Treatment of Periprosthetic Infection – A 3-month Ovine Study" (by H Qu, Z. Zawacki C. Knabe, T. Schaer, P. Ducheyne)
- World Biomaterials conference, Montreal, May 2016: Paper entitled "Micron-Thin Bactericidal Sol-Gel Coated Intramedullary Nails for the Prevention and Treatment of Infection" (by H Qu, Z. Zawacki C. Knabe, T. Schaer, P. Ducheyne)

PUBLISHED PAPERS - REFEREED JOURNALS:

Citations: > 11,200

Citations of ten most visible papers: > 2,900

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1. P. Ducheyne, P. De Meester; Superplastic testing conditions and grain growth, *J. Mat. Science* **9**:109-116, 1974.
2. M. Martens, E. Aernoudt, P. De Meester, P. Ducheyne, J.C. Mulier, R. De Langh, P. Kestelijn; Factors in the mechanical failure of the femoral component in total hip prostheses, *Acta Orthop. Scand.* **45**:693-710, 1974.
3. P. Ducheyne, P. De Meester, E. Aernoudt, M. Martens, J.C. Mulier; Fatigue fractures of the femoral components of Charnley and Charnley-Mueller type total hip prostheses, *J. Biomed. Mat. Res.* **9**(4):199-219, 1975.
4. P. Ducheyne, M. Martens, E. Aernoudt, J.C. Mulier, P. De Meester; Skeletal fixation by metal fiber coating of the implant, *Acta Orthop. Belgica* **10**:799-805, 1974.
5. P. Ducheyne, M. Martens, P. De Meester, E. Aernoudt, J.C. Mulier; The influence of a functional dynamic loading on bone ingrowth into surface pores of orthopaedic implants, *J. Biomed. Mat. Res.* **11**:811-838, 1977.
6. P. Ducheyne, L. Heymans, M. Martens, E. Aernoudt, P. De Meester, J.C. Mulier; The mechanical behavior of intracondylar cancellous bone of the femur at different loading rates, *J. Biomechanics* **10**:747-762, 1977.
7. P. Ducheyne, M. Martens, P. De Meester, E. Aernoudt, M. Vrancken, F. Van Hulle, J.C. Mulier; Microscopic fracture aspects of impact tested human bones, *J. Bioengineering* **1**:197-207, 1977.
8. P. Ducheyne, A. Kagan, II, J.A. Lacey; Failure of total knee arthroplasty due to loosening and permanent deformation of the tibial component, *J. Bone and Joint Surg.* **60A**:384-391, 1978.
9. P. Ducheyne, E. Aernoudt, P. De Meester, M. Martens, D. Van Leeuwen, J.C. Mulier; Factors governing the mechanical behavior of the implant-porous coating-trabecular bone interface, *J. Biomechanics* **11**:297-307, 1978.
10. E. Aernoudt, P. Ducheyne, G. Van der Perre, R. Bourgois, A. Van Peteghem, L. Lemeitre, K. Soudan, R. Van Audekercke, A. Bantjes; Biomateriaalkunde en biomechanika, *Het Ingenieursblad* **48**:143-151, 1979
11. P. Ducheyne, P. De Meester, E. Aernoudt; The mechanical properties of porous austenitic stainless steel fiber structures, *J. Mat. Sci.* **13**:2650-2658, 1978.
12. P. Ducheyne, P. De Meester, E. Aernoudt; Isostatically compacted metal fiber porous coatings for bone ingrowth, *Powder Metallurgy Int.* **11**:115-119, 1979.
13. P. Ducheyne, P. De Meester, E. Aernoudt; Performance analysis of total hip prostheses; two particular metallurgical observations, *J. Biomed. Mat. Res.* **14**:31-40, 1980.
14. P. Ducheyne, L.L. Hench, A. Kagan, M. Martens, J.C. Mulier; Short-term bonding behavior of bioglass coatings on metal substrate, *Archiv. Orthop. Traum. Surg.* **94**:155-160, 1979.
15. P. Ducheyne, L.L. Hench, A. Kagan, M. Martens, J.C. Mulier, A. Burssens; The effect of hydroxyapatite impregnation on bonding of porous coated implants, *J. Biomed. Mat. Res.* **14**:225-237, 1980.
16. P. Ducheyne, J.C. Mulier; De fixatie van permanente orthopedische implantaten: een multi disciplinaire samenwerking, *Tijdschrift voor geneeskunde* **36**:27-34, 1980.
17. R. Kousbroek, P. Ducheyne, G. Van der Perre, E. Aernoudt, J.C. Mulier; Fracture of hip prostheses due to incorrect welding, *Archiv. Orthop. Traum. Surg.* **98**:51-56, 1981.
18. P. Ducheyne, De reglementering en de kwaliteitscontrole van implantaten en implantaatmaterialen. *Hospitalia* **24**:169-172, 1980.
19. M. Martens, P. Ducheyne, P. De Meester, J.C. Mulier; Skeletal fixation of implants by bone ingrowth into surface pores, *Archiv. Orthop. Traum. Surg.* **97**:111-116, 1980.
20. P. Ducheyne, *In vitro* corrosion study of porous metal fiber coatings for bone ingrowth, *Biomaterials*, **4**:185-192 (1983).
21. P. Ducheyne, L.L. Hench; The processing and static mechanical properties of metal fiber reinforced bioglass, *J. Mat. Sci.* **17**:595-606, 1982.
22. P. Ducheyne, K. de Groot; *In vivo* surface activity of a hydroxyapatite alveolar bone substitute - a note, *J. Biomed. Mat. Res.* **15**:441-445, 1981.
23. P. Ducheyne, *Medische materialen, technologie en marktpenetratie*, *Het Ingenieursblad* **51**:40-45, 1982.
24. L. Gheysen, P. Ducheyne, L.L. Hench, P. De Meester; Bioglass composites: a potential material for dental application, *Biomaterials*, **4**:81-84, 1983.
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26. P. Ducheyne, A. Burssens, M. Martens; Materials, clinical and morphological evaluation of custom-made bioglass coated canine hip prostheses, *J. Biomed. Mat. Res.* **18**:1017-1030, 1984.
27. P. Ducheyne, G. Willems, J. Helsen, M. Martens; *In vivo* metal ion release from porous titanium fiber materials, *J. Biomed. Mater. Res.* **18**, 293-308, 1984.
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29. P. Ducheyne, Success of prosthetic devices fixed by ingrowth or surface interaction, *Acta Orthop. Belgica*, **51**, 144-161, 1985.
30. W. Van Raemdonck, P. Ducheyne, P. De Meester; Auger electron spectroscopical analysis of hydroxyapatite coatings on titanium, *J. Am. Ceram. Society* **67**, 381-384, 1984.
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32. G. Willems, R. Palmans, J. Collard, P. Ducheyne; The simultaneous determination of titanium and vanadium in bone tissue, *Analysis*, **12**:443-447, 1984.
33. P. Ducheyne, W. Van Raemdonck, J.C. Heughebaert, M. Heughebaert; Structural analysis of hydroxyapatite coatings on titanium, *Biomaterials*, **7**, 97-103, 1986.
34. P. Ducheyne, M. Martens; Orderly oriented wire meshes (OOWM) as porous coatings on orthopaedic implants; I Morphology, *J. Clin. Materials*, **1**, 59-67, (1986)

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41. P. Ducheyne, Titanium and calcium phosphate ceramic dental implants; surfaces, coatings and interfaces; *Oral Implantology*, **14**, 325-340 (1988)
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