

## ***CURRICULUM VITAE***

**JOHN B. BRUNSKI**

### ***MAILING ADDRESS***

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### ***EDUCATION***

B.S.	Metallurgy and Materials Science, University of Pennsylvania	1970
M.S.	Materials Science and Engineering, Stanford University	1972
Ph.D.	Metallurgy and Materials Science, University of Pennsylvania	1977

### ***ACADEMIC APPOINTMENTS***

1977	Assistant Professor, Biomedical Engineering, Rensselaer Polytechnic Institute
1983	Associate Professor, Biomedical Engineering, Rensselaer Polytechnic Institute
1994 - 2009	Professor, Biomedical Engineering, Rensselaer Polytechnic Institute
2005	Fall semester, sabbatical leave at Stanford University (Children's Hospital Surgical Research Lab), and University of Montréal (Laboratory for Calcified Tissues)
2009 - present	Senior Research Engineer, Division of Plastic & Reconstructive Surgery, Department of Surgery, School of Medicine, Stanford University
2010 - present	Faculty Associate, College of Nursing & Health Innovation, Arizona State University, Phoenix campus, Phoenix, AZ (graduate program, Regulatory Science)
2010 - present	Professor Emeritus, Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY

### ***PERSONAL DATA***

Date of Birth: 6/10/49  
Marital Status: Married (Betsy), 2 children (Jeff 32, Leah 34)

### ***PROFESSIONAL SOCIETIES***

Academy of Osseointegration  
Orthopaedic Research Society  
International Academy for Oral and Facial Rehabilitation (IAOFR)

### ***FEDERAL GOVERNMENT/ PUBLIC ADVISORY COMMITTEES***

2009 - 2012	Member, NIH Study Section MTE “Musculoskeletal Tissue Engineering”
2000 - 2009	<i>Ad hoc</i> Member, NIH Study Section MTE “Musculoskeletal Tissue Engineering”
2007	<i>Ad hoc</i> Member, NIH Study Section ZRG1 MOSS-L (10) “Small Business: Orthopedics”
1994 – 98	<i>Ad hoc</i> Member, NIH Study Section OBM 2 - Oral Medicine and Biology 2
1998	<i>Ad hoc</i> Member, NIH-NIDR Special Emphasis Panel
1996 - 97	<i>Ad hoc</i> Reviewer, Medical Research Council of Canada, Dental Sciences
1994 - 2002	Scientific Advisory Board, Implant Dentistry Research /Education Foundation
1988 - 2000	Consultant to Dental Devices and Products Panel, FDA

### **HONORS AND AWARDS**

1. President, Implantology Research Group, International Association for Dental Research (IADR), 1992.
2. Invited as one of 15 outstanding young U.S. investigators in biomechanics to the *Third US-China-Japan Conference on Biomechanics*, Georgia Tech University, August 25-29, 1992.
3. Part of a 10-person Rensselaer team receiving *Boeing Outstanding Educator Award*, Fall 1995.
4. Received a certificate for significant contributions to Rensselaer’s winning of the *1995 Theodore M. Hesburgh Award for Excellence in Undergraduate Education*
5. Part of the faculty and staff team that helped Rensselaer win the *1996 Pew Leadership Award*.
6. Part of the Rensselaer faculty team that won the *Premier Award for Excellence in Engineering Education Courseware*, Dec. 2000, sponsored by NEEDS and John Wiley and Sons. (in part for work on NSF’s “Project Links” at Rensselaer)
7. Part of the Rensselaer faculty team that won the *2001 American Society of Mechanical Engineers (ASME) Curriculum Innovation Award*, given to the team members of NSF’s “Project Links”, “...to recognize and encourage innovation in Mechanical Engineering (ME) and Mechanical Engineering Technology (MET) Education...”
8. 2001 recipient of the *Isaiah Lew Memorial Research Award*, American Academy of Implant Dentistry Research Foundation
9. Appointed as the *1<sup>st</sup> William R. Laney Visiting Professor*, Sept. 2006, Division of Prosthodontics, Mayo Clinic, Rochester, MN.
10. *2006 Jerome M. and Dorothy Schweitzer Research Award*, presented Dec. 1, 2006 at the Greater New York Academy of Prosthodontics, New York City, NY.
11. *Tjellström Award* for 2007, Craniofacial Osseointegration and Maxillofacial Prosthetics Rehabilitation Unit (COMPRU), Edmonton, Alberta, Canada.
12. *2008 Astra Tech Scientific Award for Applied Research in Osseointegration*, presented 6/7/08 at the Astra Tech World Congress, Washington DC.
13. Fellow, 2011, International Academy for Oral and Facial Rehabilitation (IAOFR)

### **MEMBERSHIPS ON EDITORIAL BOARDS**

1991 - present Associate Editor, *Int. J. Oral Maxillofac. Implants*

#### **Previous membership on Editorial Boards:**

1993 - 2007	Assistant Editor, <i>J. Biomed. Materials Res.</i>
1997 - 2005	Member, Editorial Board, <i>J. Dent. Res.</i>
1998 - 2011	Member, Editorial Board, <i>J. Applied Biomaterials</i>
1993 - 2005	Member, Editorial Board, <i>J. Biomechanics</i>
1990 - 2009	Member, Editorial Board, <i>Clin. Oral Implant Res.</i>

***INDUSTRIAL CONSULTING/ASSISTANCE IN PRODUCT DEVELOPMENT (in chronological order over the last 15 years)***

1. Nobel Biocare AB, Göteborg, Sweden (testing of dental implants; this testing related to development of an implant that has become known as the Nobel Biocare Mark IV implant.)
2. Nobel Biocare, Calif. (finite element analysis of dental implants)
3. Pfizer (Warner-Lambert), Morris Plains, NJ (measurement of calculus attachment to enamel)
4. Bicon Dental Implants, Boston MA (testing of dental implants, specifically the strength of taper-lock connections)
5. Theratechnologies Inc., Montreal, Canada (testing of “snap-on” overdenture prostheses)
6. Embed Technology, LLC, Flemington, NJ (evaluation of new mini-dental implant technology, 2008-present)
7. Autonomic Technologies, Redwood City, CA (evaluation of maxillofacial implant technology, 2009)
8. Alphatec Spine, Inc., Carlsbad, CA (assessment of Ti alloys, 2010)
9. Neoss Limited, Harrogate, UK (research and development of dental implants, specifically tapered dental implants, 2009-March 2012)
10. Nobel Biocare, Zurich, Switzerland (research and development of dental implants, 2012-present)

***LEGAL CONSULTING & EXPERT WITNESS ACTIVITY (1984-present)***

1. J. Richard Williams, Esq., Albany, NY, 1984 (fracture of Harrington spinal distraction rod)
2. Lassen, Smith, Katzenstein, and Furlow, Counselors at Law, Wilmington, DE, 1991 (analysis of dental implant design rationale, patents, and performance in patients)
3. White & Case, New York, NY 1993 (dental implant design and patent validity)
4. Thomas, Garvey, Garvey, and Sciotti, Counselors at Law, Mt. Clemens, MI, 1994 (failure analysis of a subperiosteal dental implant)
5. Godard, West and Adelman, Counselors at Law, Fairfax, VA, 1994 (failure analysis of an arthroscopic knee surgery instrument)
6. Croutier & Ryan Esqs., Garden City, NY, 1995 (failure analysis of dental implants)
7. Welsh & Katz, Ltd., 120 South Riverside Plaza, Chicago IL, 1998-99 (dental implant design and patent infringement)
8. Evenson, McKeown, Edwards & Lenahan, P.L.L.C., Washington DC, 2000 (dental implant design and patent infringement)
9. Litchfield-Cavo, Chicago IL, 2000-01 (dental implant fractures)
10. Genese Dopson Smith and Assoc., San Rafael, CA, 2001 (dental implant fractures)
11. Litchfield-Cavo, Chicago IL, 2001-02 (dental implant patent infringement)
12. Carolyn Merchant PC, Albuquerque NM, 2000-02 (TMJ implant failure)
13. Avolio & Hanlon, P.C., Lawrenceville, NJ, 2001-02 (TMJ implant failures: three cases)
14. Heafey, Roach & May, Los Angeles, CA, 2001 (oral implants and clinical trials)
15. Brobeck, Phleger & Harrison LLP, San Diego, CA 2001-02 (dental implant & trade dress)
16. Knobbe Martens Olson & Bear, LLC, Irvine, CA 2003-2004 (patent infringement, dental implants)
17. Paul, Hastings, Janofsky & Walker LLP, San Diego CA, Kaye Scholer, NYC, NY, 2004 (patent infringement, dental implants)
18. Colleen Whalen, Esq., Clifton Park, NY, 2005-06 (failure analysis of a fractured dental implant)
19. Quinn Emanuel Urquhart Oliver & Hedges, LLP, Los Angeles, CA, 2005-07 (assessment of dental implant mechanics)

20. Knobbe Martens Olson & Bear, LLC, Irvine, CA, 2008-2009 (patent infringement, dental implants)
21. Knobbe Martens Olson & Bear, LLC, Irvine, CA, 2005-2014 (patent infringement, dental implants)
22. D'Amico, Griffin & Pettinicchi, LLC, Watertown, CT 2009-2014 (failure analysis of a fractured maxillofacial bone plate)
23. Tigran Technologies AB, Medeon Science Park, SE-205 12 Malmö, Sweden 2011-2012 (biomechanical analysis of particulate biomaterials)
24. IntriMed Technologies, 1850 Eastman Avenue, Oxnard, CA 2011-2012 (assessment of implant surface texturing)
25. Shapiro, Fishman & Gaché, LLP, 2424 N. Federal Highway, Suite 360. Boca Raton, FL 33431, 2011-2013 (litigation relating to dental implant system development)
26. Tracy A. Gallegos, Esq., Morris Polich & Purdy LLP, 3883 Howard Hughes Pkwy., Suite 560, Las Vegas, Nevada 89169 2011-2013 (investigation of oral implant failures)
27. Mayer Brown LLP, 1675 Broadway, New York, NY, 2011-2015 (expert witness in a patent infringement case involving an overdenture attachment system for dental implants)
28. Procopio, Cory, Hargreaves & Savitch LLP, Attorneys at Law, Scottsdale, AZ, 2014-present (expert witness in a patent infringement case involving an intraoral device)
29. Marshall, Dennehy, Warner Coleman & Coggin, Attorneys at Law, Philadelphia PA, 2014-present (expert witness in a case involving oral implants and their stability in immediate loading).
30. Knobbe Martens Olson & Bear, LLC, Irvine CA, 2014-present (patent infringement, dental implants)
31. Mayer Brown LLP, 71 South Wacker Drive, Chicago, Illinois 60606-4637, July 2015 - present, consulting on a patent infringement case involving oral implants.

Testimony/Deposition activity in the last 10 years:

- Depositions in cases #13 (8/26/02), #15 (5/21/02), and #16 (12/13/02, 1/13/03).
- Trial testimony on Nov. 7, 2002, in one of three cases involved within #13, above.
- Testimony at an Arbitration Hearing for case #16 (above) on Jan. 13-14, 2004.
- Trial testimony for case #18 (above) in NY State Court, spring 2006.
- Deposition in connection with case #19 (above), May 2007, Superior Court of the State of California in and for the County of Los Angeles, Case No. BC209992 [Related to BC263071], Sargon Enterprises, Inc. v. University of Southern California
- Deposition in connection with case #20 (above) in May 27, 2009, in United States District Court for the Central District of California Western Division, Civil Action No. CV08-1407 ODW (RZx), Nobel Biocare USA, LLC v. Blue Sky Bio, LLC.
- Depositions in connection with case #22 (above), May 2, 2011; April 30, 2012; and April 14, 2014
- Deposition in connection with case #25 (above), April 23, 2012
- Deposition in connection with case #27 (above), June 20, 2014

***PRIVATE BUSINESS VENTURE***

J. Brunski is Senior VP and Chief Operating Officer of *OsseoConception, LLC*, Spokane, WA, a company formed in 2007 together with Dr. Kenji W. Higuchi (CEO), an oral & maxillofacial surgeon. Activities include consultation on medical device innovation and implant development using the principles of osseointegration.

***TEACHING EXPERIENCE (undergraduate & graduate courses, 1977-2009 Rensselaer Polytechnic Institute)***

Undergraduate Core Engineering Courses

1. 20.250 Materials I (elementary materials science), '78-'81
2. 20.205 Mechanics I (statics and dynamics of rigid bodies), '82-'84
3. 20.201 Engineering Modeling and Design (engineering design), '83-'89 (once as course director)
4. 20.206 Mechanics II (solid mechanics), '89
5. 20.1916 Intro. to Eng. Analysis (statics, linear algebra and computing), Pilot Version I, '89
6. 20.110 Intro to Eng. Analysis, " Pilot Version II, '90
7. 20.110 Intro. to Eng. Analysis, " Pilot Version III, '91
8. 20.110 Intro. to Eng. Analysis, full-scale version, '92, '93, '94 (course director, 10 sections)
9. 20.1104 Intro to Eng. Analysis, Studio/Laptop Computing Version, '95 -'02

Undergraduate Biomedical Engineering Courses

1. 31.406 Introduction to Biomaterials, '78 -'86
2. 31.406 Intro to Biomat. & Biomech., '86, '88
3. 31.456 Fundamentals of Biomat./Biomech., '90
4. 31.455 Biomaterials, '92 - '99
5. 31.407 Biomaterials/Biomechanics Laboratory, '81, '82
6. 31.460 BME Design, individual senior projects, '77-'04
7. 31.460 BME Design, course director '90, '91, 2002-2004
8. 31.460 BME Design for Biomat'ls. & Biomech. '92-'96
9. BMED 2961 Biomaterials Science & Engineering, 2005-2006
10. BMED 4962 Biomech. of Soft Tissues ("hybrid" undergrad and grad course), 2006, 2008
11. BMED 2100 Biomaterials Science & Engineering, 2007, 2008, 2009
12. BMED 4962 Biomech. of Hard Tissues ("hybrid" undergrad and grad course), 2007

Graduate Biomedical Engineering Courses

1. 31.631 Properties of Hard Connective Tissues, '85, '87
2. 31.628 Biomech. of Soft Tissues, '89, '91, '93, '95, '97, '00, '01, '03, '06
3. 31.629 Biomech. of Hard Tissues, '90, '91, '92, '94, '96, '98, '00, '01, '02, '04, '07
4. 31.624 The Tissue-Implant Interface (with R. Bizios), '90
5. 31.690 and 31.490 BME Seminar, '79-'83
6. BMED 6280 Biomech. of Soft Tissues (hybrid undergrad and grad course), 2006, 2008
7. BMED 6290 Biomech. of Hard Tissues (hybrid undergrad and grad course), 2007

***TEACHING EXPERIENCE (graduate courses taught other than at Rensselaer Polytechnic Institute)***

HCR 556 Quality Systems and Standards for Medical Products, spring 2012 (Graduate Course, Arizona State University, Phoenix downtown campus)

***THESIS SUPERVISION (Rensselaer Polytechnic Institute, 1977-2009)***

Masters Degrees: 39  
Doctoral Degrees: 10

John B. Brunski

Undergraduate Research and BME Capstone Design Students: about 6 to 12 per year since 1977

***UNDERGRADUATE STUDENT ADVISING (Rensselaer Polytechnic Institute, 1977-2009)***

Typical undergraduate advising load per semester: 40-50 BME students

***SERVICE TO DEPARTMENT AND UNIVERSITY (Rensselaer Polytechnic Institute, selected from the last 15 years prior to retirement from Rensselaer in Dec. 2009)***

For the BME Department

Chaired two search committees for junior faculty  
Served on two search committees for BME department Chairmen  
Served as Chair of the BME undergraduate curriculum committee for 4 years  
Served as ABET coordinator in the BME department for 2 years  
Served as Chair of the BME graduate committee for 2 years

For the Engineering School and University

Member of the School of Engineering Promotion & Tenure Committee  
Member, School of Engineering Curriculum Committee  
Chair, School of Engineering Faculty Awards Committee  
member, search committee for a Chairman of the Biology department  
Secretary of Faculty Senate, 2 years  
Served on a process reengineering team on Advising and Registration  
Served on a process reengineering team on laptop computing for Rensselaer students  
Member, School of Engineering committee on Faculty Evaluation and Compensation  
Chair and/or member of the Institute Animal Care and Use Committee  
Chair, Faculty Senate Budget & Planning Committee  
Member, Faculty Senate sub-committee on revisions to the Institute's IP policy

***BOOK CHAPTERS***

1. J.B. Brunski, "Design of a Transducer for Measuring *In Vivo* Forces on Endosseous Dental Implants," in *Advances in Biomaterials*, 3 (eds. G.D. Winter, D.F. Gibbons and H. Plenk), John Wiley & Sons, U.K., pp. 347-353 (1982)
2. J.B. Brunski, A.F. Moccia, Jr., S.R. Pollack, E. Korostoff and D. Trachtenberg, "Investigations of the Surfaces of Retrieved Endosseous Dental Implants of Commercially Pure Titanium," in *Titanium and Its Alloys for Surgical Implants*, ASTM Special Technical Publication #796 (H.A. Luckey and F. Kubli, eds.), pp. 189-205 (1983)
3. J.A. Hipp, J.B. Brunski, M.S. Shephard and G.V.B. Cochran, "Finite Element Models of Implants in Bone: Interfacial Assumptions," in *Biomechanics: Current Interdisciplinary Research* (S.M Perren and E. Schneider, eds.), Martinus Nijhoff Publishers, Dordrecht, The Netherlands, pp. 447-452 (1983)
4. J.B. Brunski, "Tooth and Jaw, Biomechanics of," in *Encyclopedia of Medical Devices and Instrumentation*, Vol. 4 (J.G. Webster, ed.), John Wiley & Sons, New York, pp. 2776-2788 (1988)
5. J.B. Brunski, "The Influence of Force, Motion, and Related Quantities on the Response of Bone to Implants," in *Non-Cemented Total Hip Arthroplasty* (R. Fitzgerald, Jr., ed.), Raven Press Ltd., New York, pp. 7-21 (1988)

6. J.B. Brunski, J.A. Hipp and G.V.B. Cochran, "The Influence of Biomechanical Factors at the Tissue-Biomaterial Interface," in *Biomedical Materials and Devices*, Materials Research Society Symposium Proceedings, Vol. 110 (J.S. Hanker and B.L. Giammara, Eds.), Materials Research Society, Pittsburgh PA, pp. 505-15 (1989)
7. J.B. Brunski, "The Influence of Biomechanical Factors at the Bone-Biomaterial Interface," in *The Bone-Biomaterial Interface* (J.E. Davies, ed.), University of Toronto Press, Toronto, Canada, pp. 391-405 (1991)
8. J.B. Brunski, "Prosthetic Alloys," *McGraw-Hill Encyclopedia of Science and Technology*, 7th Edition, McGraw-Hill Professional Book Group, NY, p. 404 (1992)
9. J.B. Brunski, "Loadings on Implants and Interfacial Stress Transfer," in *Tissue Integration in Oral, Orthopaedic and Maxillofacial Reconstruction* (W.R. Laney and D.E. Tolman, eds.), Quintessence Publishing Co., Inc., pp. 108-124 (1992)
10. J.Taylor, J.B. Brunski, S.J. Hoshaw, G.V.B. Cochran and K.W. Higuchi, "Interfacial Bond Strengths of Ti-6Al-4V and HA-Coated Ti-6Al-4V Implants in Cortical Bone," in *Tissue Integration in Oral, Orthopaedic and Maxillofacial Reconstruction* (W.R. Laney and D.E. Tolman, eds.), Quintessence Publishing Co., Inc., pp. 125-132 (1992)
11. S.J. Hoshaw, J.B. Brunski, G.V.B. Cochran and K.W. Higuchi, "Bone Modeling and Remodeling Around Control and Axially-Loaded Fixtures in Canine Tibiae," in *Tissue Integration in Oral, Orthopaedic and Maxillofacial Reconstruction* (W.R. Laney and D.E. Tolman, eds.), Quintessence Publishing Co., Inc., pp. 275-280 (1992)
12. J.B. Brunski, R.E. Baier and R.M. Pilliar, "Consensus Panel Reports: Basic Science Consensus Panel," in *Tissue Integration in Oral, Orthopaedic and Maxillofacial Reconstruction* (W.R. Laney and D.E. Tolman, eds.), Quintessence Publishing Co., Inc., pp. 381-384 (1992)
13. J.B. Brunski and R. Skalak, "Biomechanical Considerations for Osseointegrated Fixtures," in *Advanced Osseointegration Surgery: Applications in the Maxillofacial Region* (P. Worthington and P.-I. Brånemark, eds.), Quintessence Publishing Co., Inc., pp. 15-39 (1992)
14. M.B. Schmidt and J.B. Brunski, "In Vitro Cell Adhesion and Detachment Behavior for Various Biomaterial Substrates," in *Tissue-Inducing Biomaterials*, Materials Research Society Symposium Proceedings Vol. 252 (L.G. Cima and E.S. Ron, Eds.) Materials Research Society, Pittsburgh PA, pp. 193-198 (1992)
15. K.C. Hinge and J.B. Brunski, "Teaching Computing in Context, Using the Computer as `Tool'," *Proceedings of the Ninth Annual Conference on University Programs in Computer-Aided Engineering, Design and Manufacturing (Proc. '91 UPCAEDM)*, Brigham Young University, Salt Lake City, UT, pp. 66-71 (1991)
16. J.B. Brunski and R. Skalak, "Biomechanics of Osseointegration and Dental Prostheses," in *Osseointegration and Oral Rehabilitation* (I. Naert, D. Van Steenberghe and P. Worthington, Eds.), Quintessence Publishing Co., Berlin, Chapter 7, pp. 133-156 (1993)
17. J.B. Brunski, J.B. and Hoshaw, S.J. "Bone modeling and remodeling in relation to maintenance of attachment at bone-dental implant interfaces," in *The Biological Basis of Tooth Eruption, Resorption,*

- and Replacement by Implants.* (Z. Davidovitch, Ed.) Harvard Society for the Advancement of Orthodontics, Boston, MA, pp. 667-680 (1994)
18. J.B. Brunski, "Biomechanics of Dental Implants," in *Endosseous Implants for Maxillofacial Reconstruction* (M.S. Block and J.N. Kent, Eds.) W.B. Saunders, Inc., Phila. PA, pp. 22-39, (1995)
  19. J.B. Brunski, "Metals," in *Biomaterials Science: An Introduction to Materials in Medicine* (B.D. Ratner, A.S. Hoffman, F.J. Schoen, and Lemons, Eds.) Academic Press, Inc., NY, Chapter 2, section 2.2, pp. 37-50 (1996)
  20. J.B. Brunski, "Biomechanics of Dental Implants." in *Implants in Dentistry* (Eds. M. Block, J.N. Kent and L.R. Guerra), W.B. Saunders Co., Phila. PA, pp. 63-71 (1997).
  21. J.B. Brunski and R. Skalak, "Biomechanical Considerations for Craniofacial Implants," in *Osseointegration In Craniofacial Reconstruction* (P-I. Brånemark and D.E. Tolman, Eds.) Quintessence Publishing Co., Inc., Carol Stream, IL, Chapter 2, pp. 15-36 (1998).
  22. J. B. Brunski and J. M. Slack, "Orthodontic Loading of Implants: Biomechanical Considerations", in *Orthodontic Applications of Osseointegrated Implants* (K.W. Higuchi, Ed.), Quintessence Publishing Co., Inc., Carol Stream, IL, Chapter 5, pp. 89-108 (2000).
  23. J.B. Brunski, "Biomechanics of the bone-dental implant interface: *in vivo* response to loading." pp. 121-164 in *Bridging the Gap Between Dental and Orthopedic Implants*, Proceedings of the 3<sup>rd</sup> Annual Indiana Conference (Eds. L. P. Garetto, C.H. Turner, R.L. Duncan and D.B. Burr), May 13-16, 1998, Indiana University School of Dentistry, Indianapolis IN, Indiana School of Dentistry (2002)
  24. J.B. Brunski, "Biomechanics", Chapter 6 in *Osseointegration in Dentistry – an Overview, 2<sup>nd</sup> edition* (Eds: P. Worthington, B. Lang and J. Rubenstein), Quintessence Publishing Co., Inc., Carol Stream, IL, pp. 49-83 (2003)
  25. J.B. Brunski, "Metals," in *Biomaterials Science: An Introduction to Materials in Medicine* Second Edition (B.D. Ratner, A.S. Hoffman, F.J. Schoen, and Lemons, Eds.) Elsevier Academic Press, London, Chapter 2, section 2.9, pp. 137-153 (2004)
  26. Brunski, J.B. Glantz, P-O., Helms, J.A. and Nanci, A. "Transfer of mechanical load across the interface", Chapter 10 pp. 209-249 in *The Osseointegration Book*, P-I Brånemark (editorial board S. Chien, H-G Gröndahl and K. Robinson), Quintessenz Verlags-GmbH (2005)
  27. Brunski, JB, Currey, JA, Helms, JA, Leucht, P, Nanci, A, and Wazen, R. "The healing bone-implant interface: role of micromotion and related strain levels in tissue." Chapter 11 in *Osseointegration and Dental Implants* (Ed. Asbjorn Jokstad), Wiley-Blackwell, pp. 205-211 (2009)
  28. Brunski, JB, Currey, JA, Helms, JA, Leucht, P, Nanci, A, Wazen, R "Implant geometry, interfacial strain, and mechanobiology of oral implants revisited", pp. 45-59 in *Proceedings of the First P-I Brånemark Scientific Symposium, Gothenburg 2009* (Eds. R. Gottlander and D. van Steenberghe), Quintessence, Surrey, Great Britain (2011).
  29. Brunski, JB "Biomechanical aspects of tilted regular and zygoma implants." Chapter 4, pp. 24-45 in *Zygomatic Implants: The Anatomy Guided Approach* (Ed. C. Aparicio), Quintessence, 2012.



30. Brunski, JB "Biomechanical perspectives relevant to the use of mini-dental implants", Chapter 4, pp. 35-48 in *Mini Dental Implants: Principles and Practice* (Ed. Victor Sendax), Elsevier Mosby (2013)
31. Brunski, JB. "Metals: Basic principles", Chapter 1.2.3, pp. 111-119, in *Biomaterials Science: An Introduction to Materials in Medicine*, Third Edition (Eds. B. D. Ratner, A. S. Hoffman, F. J. Schoen, and J.E. Lemons), Elsevier Inc. (2013)

**PEER REVIEWED JOURNAL ARTICLES and EXTENDED (2000+ word) ABSTRACTS**

1. J.B. Brunski, A.F. Moccia, Jr., S.R. Pollack, E. Korostoff and D. Trachtenberg, "The Influence of Functional Use of Endosseous Dental Implants on the Tissue-Implant Interface, Part I: Histological Aspects," *J. Dent. Res.* 58(10): 1953-1969 (1979)
2. J.B. Brunski, A.F. Moccia, Jr., S.R. Pollack, E. Korostoff and D. Trachtenberg, "The Influence of Functional Use of Endosseous Dental Implants on the Tissue-Implant Interface, Part II: Clinical Aspects," *J.Dent. Res.* 58(10): 1970-1980 (1979)
3. J.B. Brunski, V. Roth, N. Reddy and G.V.B. Cochran, "Finite Element Stress Analysis of a Contact Problem Pertaining to Formation of Pressure Sores," *1980 Advances in Bioengineering* (V.C. Mow, ed.), ASME Publication, pp. 53-56 (1980)
4. J.B. Brunski, N.P. Reddy, H. Patel, and G.V.B. Cochran, "Stress Distributions in a Loaded Buttock with Various Seat Cushions," *1980 Advances in Bioengineering* (V.C. Mow, ed.), ASME Publication, pp. 97-100 (1980)
5. J.B. Brunski, "Methods for Measuring *In Vivo* Forces on Dental Implants During Experiments on the Biomechanics of Interface Tissue Response," *1981 Advances in Bioengineering* (D.C. Viano, ed.), ASME Publication, pp. 185-188 (1981)
6. J.B. Brunski, N.P. Reddy, H. Patel, and G.V.B. Cochran, "Model Experiments to Study the Stress Distribution in a Seated Buttock," *J. Biomechanics* 15(7): 493-504 (1982)
7. R.B. Schock, J.B. Brunski and G.V.B. Cochran, "*In Vivo* Experiments on Pressure Sore Biomechanics: Stresses and Strains in Indented Tissues," *1982 Advances in Bioengineering* (L.E. Thibault, ed.), ASME Publication, pp. 88-91 (1982)
8. J.B. Brunski, D.C. Hill and A. Moskowitz, "Stress Analysis of a Harrington Distraction Rod and the Relationship to Fatigue Fractures *In Vivo*," *J. Biomechanical Eng.* 105:101-107 (1983)
9. J.B. Brunski and J.A. Hipp, "*In Vivo* Forces on Endosteal Dental Implants: A Measurement System and Biomechanical Considerations," *J. Prosth. Dent.* 51(1):82-90 (1984)
10. J.B. Brunski and J.A. Hipp, "*In Vivo* Forces on Dental Implants: Hard Wiring and Telemetry Methods," *J. Biomech.* 17(11):855-860 (1984)
11. J.B. Brunski, J.A. Hipp and M. El-Wakad, "Dental Implant Design: Biomechanics and Interfacial Tissues," First Annual Symposium of the American Academy of Implant Dentistry Research Foundation - Forefront '85, *J. Oral Implantol.* 12(3):365-375 (1986)

12. M. Ferguson-Pell, G.V.B. Cochran, V.R. Palmieri and J.B. Brunski, "Development of a Modular Cushion for Spinal Cord Injured Persons," *J. Rehabilitation Research and Development* 23(3):63-76 (1986)
13. J.A. Hipp, J.B. Brunski and G.V.B. Cochran, "Method for Histological preparation of Bone sections Containing Titanium Implants," *Stain Technology* 62(4):247-252 (1987)
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66. D.G. Kim and J.B. Brunski, "A composite model of human cortical bone based on transverse isotropy." Abstract 544, *48<sup>th</sup> Annual Meeting of the Orthopaedic Research Society*, Dallas TX, Feb. 2002.
67. J.A. Porter, J.B. Brunski, G. Wolfinger, T. Balshi and R. Winkelman, "In vivo loading on implants: theory vs. experiments." Abstract #1370, *80<sup>th</sup> Session of the International Association for Dental Research (IADR)*, San Diego CA, March 2002, *J Dent Res 81 (Spec Iss A): A-187*, 2002.
68. J. B. Brunski, D. Kim, A. Prabhu and C-J Yang, "Biomechanical modeling of overload at the bone-oral implant interface." *4<sup>th</sup> World Congress of Biomechanics*, Aug. 4-8 2002, Calgary, Canada.
69. S. Huang, C.I. Colnot, C. Lu, J.B. Brunski and J.A. Helms, "Molecular and cellular analysis of bone-implant interfaces." Poster #1371, *49<sup>th</sup> Annual Meeting of the Orthopaedic Research Society*, Feb. 2-5, 2003, New Orleans, LA.
70. J.B. Brunski, D.G. Kim, M. Rubin, R.Z. LeGeros, and P.C. Pan. "Zn-containing mouthrinse affects calculus-dentin attachment strength" Abstract #0499, *32<sup>nd</sup> Annual Meeting of the American Association for Dental Research (AADR)*, San Antonio TX, March 12-15, 2003.
71. J. B. Brunski, J.A. Duyck, T. Vanasse, N. White, and M. Doshi. "In Vivo Axial Forces on Implants: Theory vs. Experiment" Abstract 91, *IADR/AADR/CADR 82nd General Session (March 10-13, 2004)* Honolulu, HI.
72. J. Currey, P. Leucht, J-B. Kim, J.B. Brunski, J.A. Helms, A. Nanci, and D. Nicolella. "A new mouse model for studying mechanobiology at the healing bone-implant interface." *First International Conference on Mechanics of Biomaterials & Tissues*, abstract 037, Wiakoloa, Hawaii, Dec. 11-15, 2005.
73. P. Leucht, J-B Kim, J.A. Currey, J.B. Brunski, J.A. Helms, "Molecular and cellular characterization of the in vivo response associated with loaded and unloaded implants", abstract #1206, *52<sup>nd</sup> Orthopaedic Research Society Meeting*, Chicago, IL March 2006
74. J.A. Currey, P. Leucht, J-B Kim, J.A. Helms, A. Nanci, and J.B. Brunski, "Mechanobiology of healing bone-implant interfaces: Implant micromotion system for a mouse model", abstract #1693, *52<sup>nd</sup> Orthopaedic Research Society Meeting*, Chicago, IL March 2006
75. J.A. Currey, P. Leucht, A. Vercnocke, D. Hansen, D. Nicolella, and J.B. Brunski, "A micro-CT based system for determining strain fields at a bone-implant interface in the mouse tibia." abstract #1708, *52<sup>nd</sup> Orthopaedic Research Society Meeting*, Chicago, IL March 2006

76. Currey JA, Nicolella D, and Brunski JB “Characterization of the mechanical environment at an implant interface: an in vitro study”, *2006 Summer Bioengineering Conference (Proceedings of BIO2006)*, June 21-25 2006, Amelia Island Plantation, Amelia Island, FL. [podium presentation by Jenn Currey placed 2<sup>nd</sup> in the doctoral student competition at the conference]
77. Brunski, J.B., Currey, J., Helms, J.A. Leucht, P., Nanci, A., Nicolella, D. Wazen, R., “Mechanobiology at healing bone-implant interfaces: strain distribution and tissue response”, podium presentation, *5<sup>th</sup> World Congress of Biomechanics*, Munich Germany, August 2006.
78. Leucht, P., Kim, J-B, Brunski, J.B., and Helms, J.B. “Skeletal regeneration is cooperatively regulated by mechanical forces and molecular signals.” Paper # 119, *53<sup>rd</sup> Annual Orthopaedic Research Meeting*, Feb. 11-14, 2007, (Podium presentation)
79. D’Anjou, C., Currey, J., Wazen, R., Nanci, A., Leucht, P., Helms, J.A., and Brunski, J.B. “Stiffness of the bone-implant interface as an indicator of bone healing”, Poster #951, *53<sup>rd</sup> Annual Orthopaedic Research Meeting*, Feb. 11-14, 2007
80. Currey, J.A., D’Anjou, C., Leucht, P., Wazen, R., Helms, J.A., Nanci A., and Brunski, J.B. “Determination of *in vivo* mechanical properties of healing interfacial tissue at an implant site in bone.” *2<sup>nd</sup> International Conference on Mechanics of Biomaterials & Tissues*, abstract 039, Lihue, Kaua’I, Hawaii, Dec. 9-13, 2007.
81. Brunski, JB, Leucht, P, Dietrich, H., Currey, JA, Wazen, R, Nanci, A, Helms, JA. “Interfacial Strain Fields from Implant Micromotion Influence Early Events during Bone Regeneration”, Poster #1866, *54<sup>th</sup> Annual Orthopaedic Research Meeting*, March 1-4, 2007.
82. Guo H, Spilker RL, and Brunski JB “Modeling the Strain Fields for an In-vivo Bone Growth Experiment”, *Proceedings of the 2010 IEEE 36th Annual Northeast Bioengineering Conference*, Columbia University, NYC NY
83. Wazen RM, Brunski JB, Currey JA, Helms JA, Leucht P, Nanci A. “Interfacial tissue response is influenced by local strain created during implant micromotion”. *European Calcified Tissue Society*, Glasgow, Scotland, June 26th-30<sup>th</sup>, 2010.
84. Wazen R, Nishio C, Kuroda S, Brunski JB and Nanci A “Gene expression profiling by DNA microarray and histomorphometric analyses of healing bone around nanotextured implants” Poster #1311, *2011 Annual Meeting of the Orthopaedic Research Society*, Jan. 13-16, 2011.
85. Leucht P, Monica S, Jiang J, Jacobs CR, Spilker RL, Brunski JB and Helms JA “Primary cilia act as mechanosensors during bone healing around an implant” Poster #518, *2012 Annual Meeting of the Orthopaedic Research Society*, ISSN 0149-6433, February 4-7, 2012, San Francisco CA
86. Johnson CA, Li J, Smith AA, Brunski JB and Helms JA “Midfacial Growth and Surgically Induced Growth Arrest”, *Plastic Surgery 2014*, Abstract Supplement, p. 20

#### **INVITED DISCUSSION OF PAPERS**

J.B. Brunski, in *J. Oral Maxillofac. Surg.* 50:716-717 (1992): Discussion of "A Light and Electron Microscopic Comparison of Osseointegration of Six Implant Types," by A.L. Zisk, D.E. Steflik, G.R. Parr and P.J. Hanes, *J. Oral Maxillofac. Surg.* 50:709-716 (1992)

J. B. Brunski, in *J. Oral Maxillofac. Surg.* 1999;57:706-708: Discussion of "Mechanical Properties of Trabecular Bone in the Human Mandible: Implications for Dental Implant Treatment Planning and Surgical Placement." by C. E. Misch, Z. Qu and M.W. Bidez, *J. Oral Maxillofac Surg*

### **EDITORIALS**

1. J.B. Brunski, "Dental Implants and the Great Vortex of Dentistry," *Int J Oral & Maxillofacial Implants* 7(3):295-6 (1992).
2. J.B. Brunski, "Biomechanik und Suprakonstruktionen in der Implantologie", *Phillip Journal* 6/95, p. 265.
3. J.B. Brunski, "Biomaterials and Medical Implant Science" *Int J Oral Maxillofac Implants*, Vol. 10, No. 6, pp. 649-650 (1995).
4. J.B. Brunski, "A Tribute to Richard Skalak", *Int J Oral Maxillofac Implants*, Vol. 12, No. 6, pp. 727-728, (1997).
5. J.B. Brunski, "The New Millennium in Biomaterials and Biomechanics", *Int J Oral Maxillofac Implants*, Vol. 15, No.3, pp. 327-328, 2000.
6. J.B. Brunski, A. Nanci and J. Helms, "Implant stability and the bone-implant interface", *Applied Osseointegration Research* Vol. 2 No. 1, December 2001, pp. 3-5.
7. J.B. Brunski, "Are dental implants stronger than natural teeth?" *Int J Oral Maxillofac Implants*, Vol. 19, No. 6, pp. 801-802, (2004).
8. T. Albrektsson, J.B. Brunski and A. Wennerberg. " "A requiem for the periodontal ligament" revisited". *Int J Prosthodontics* 22(2):120-122 (2009).

### **NON-REFEREED PUBLICATIONS**

1. J.B. Brunski, "Avoiding Pitfalls of Overloading and Micromotion of Intraosseous Implants," *Dental Implantology Update*:77-81, October 1993
2. J.B. Brunski, "Building Foundations for Dreams," prepared for "The Last Word", a opinion column in *Rensselaer*, Dec. 1992, p. 48. (This accompanied a cover story about one of Prof. Brunski's former students, Dr. David E. Altobelli, B.S. '78, D.M.D., M.D., Harvard)
3. B. Rangert, "Laboratory research at Rensselaer bodes well for clinical progress" *Nobel Biocare Global Forum* Vol. 10, No. 2, pp. 6-7, 1996. (This article described ongoing research by J. Brunski and his students.)
4. Brunski, J.B. "Micromotion and Dental Implants: A research update in two parts – with thought-provoking consequences for longevity", *Nobel Biocare News*, Issue 1, 2012, p. 14, continued in Issue 2: "Biological Consequences of Micromotion and Interfacial Strain" -- also see <http://newsletter.nobelbiocare.com/>

***RESEARCH FUNDING (in the last 25 years)***

1. "Determination of the Effects of Implant Interface Mechanics on Bone Remodeling", Co-Principal Investigators J.B. Brunski (Rensselaer) and G.V.B. Cochran (Helen Hayes Hospital) \$132,000 (direct plus indirect) subcontract to RPI from Veterans Administration, Washington, DC, through Castle Point NY Veterans Administration Hospital, Castle Point NY, 1/1/87 - 12/31/90
2. "A Training Program in Dental Materials", Principal Investigator J.B. Brunski, approx. \$150,000/yr for 16 years through Summer 1992, NIH grant # 2 T32 DE07054 (JBB assumed the PI role when Professor J.L. Katz left Rensselaer in the mid-eighties).
3. "A New Program in Biochemistry and Biophysics " Principal Investigators: S. Wait, B. Wallace, J. Koretz et al. (Biology), from Howard Hughes Medical Foundation 1989 – 1994 (approx. \$1,000,000 total award to Wait et al.): approx. \$15,000 to J.B. Brunski
4. "Railroad Switch Stand Development", Principal Investigator Larry Ruff (Center for Manufacturing Productivity and Technology Transfer), Senior Investigator J.B. Brunski, \$52,000 from Union Pacific Railroad, Omaha, Nebraska, May 1989 - October 1989.
5. "Undergraduate Engineering Design Initiative", Principal Investigators: J.L. Katz (through 1989) J.B. Brunski (1989-1994), Other Senior Investigators D.R. Gisser, J.C. Newell, L.E. Ostrander, \$10,000/year from National Science Foundation, 6/1/88-11/30/94
6. "Curriculum Development: Statics and Linear Algebra", Co-Principal Investigators: J.B. Brunski and D. Lagoudas, Senior Investigators Kathleen C. Hinge, \$10,000 from Rensselaer's Center for Innovation in Undergraduate Education, Summer 1991 – Spring 1992.
7. "Undergraduate Course Development in Engineering: Mechanics and Linear Algebra", Principal Investigators: J.B. Brunski and D. Lagoudas, \$75,000 from National Science Foundation, 6/1/92-11/30/93.
8. "Strategic Initiatives Funding: Intro to Engineering Analysis (Studio Version)", Principal Investigator: J.B. Brunski, Senior Investigators R.L. Spilker, \$15,000 from Rensselaer's Strategic Initiatives Funding, 9/16/93-9/15/94.
9. "Research on Dental Implants," Principal Investigator: J. Brunski, \$48,740 from Nobel Biocare AB, Göteborg, Sweden, 1994-1996.
10. "Mathematics and its Applications in Engineering and Science: Building the Links," Co-Principal Investigators: W. Boyce, J. Brunski and J. Wilson, Investigator J. B. Brunski, DUE-9451274, \$49,433, Summer 1995 (Planning grant leading to a successful major award in Fall 1995, see 11, below).
11. "Mathematics and Its Applications in Engineering and Science: Building the Links," Principal Investigators: W. Boyce and R. Spilker. J. Brunski was one of five group leaders in the project, \$4,000,000 for 5 years, starting 1995.
12. "Research on Dental Implants" Principal Investigator: J.B. Brunski, \$31,500 from Spokane Center for Tissue Integrated Reconstruction, Fall '93 – present.

13. "GTE and Rensselaer Polytechnic Institute - A Partnership," Co-Principal Investigators: J. Brunski, J. Modestino, \$400,000 total, Fall 1995-Fall 2000, \$49,000/year to J. Brunski, GTE Foundation. (The project is for work on a wireless distribution network, plus a studio/laptop-computer version of 20.1100 Introduction to Engineering Analysis.)
14. "Delivering Diversity Efficiently," Co-Principal Investigators: J.C. Newell and J. Brunski, Strategic Initiatives funding \$28,000, June 1996-May 1997. (The project developed web-based modules and related materials for use in Core Engineering courses and modified BME courses in the new 4 x 4 curriculum.)
15. "Measurement of loading in the lumbar spine: a novel approach using an intradiscal implant in a baboon", B.L. Sachs, J.B. Brunski, R.L. Uhl, E. Krempl (Co-PIs), North American Spine Society, \$49,992 (direct + indirect costs, awarded to Albany Medical College), 1997-98
16. "A Faculty Workshop on the Use of Laptop Computers in 1<sup>st</sup>-Year Courses", J. Brunski and J. Kolb, Co-PIs, Strategic Initiatives Funding \$250,000, 1999-2000.
17. "Micro-tensile test to assess bonding of dental calculus to tooth surfaces", J. B. Brunski, Pfizer (Warner-Lambert Inc.), Morristown, NJ, \$40,000 (direct costs), 2000-2002.
18. "Mechanobiology at healing bone-implant interfaces." Research Revitalization Grant, \$28,307 direct costs, awarded by the Provost's Office, Rensselaer Polytechnic Institute, Fall 2001.
19. "Molecular level mechanisms of mesenchymal stem cell responses to select mechanical stimuli" Investigators: Deepak Vashishth, Ph.D., Rena Bizios, Ph.D., John B. Brunski, Ph.D., \$37,000 seed funding from Provost's fund competition, Rensselaer Polytechnic Institute, Dec. 2003-Nov. 2004
20. "Mechanobiology at healing bone-implant interfaces." NIH National Institute for Biomedical Imaging and Bioengineering NIBIB 2R01 EB 000504-05, 7/1/08 thru 6/30/12, \$2.4 M direct and indirect costs, multiple PIs: J.B. Brunski, J.A. Helms and A. Nanci
21. "Biophysical control of adult stem cell fate", Stanford University Bio-X program, Fall 2010-Fall 2012, approx. \$135,000, J.A. Helms PI, J.B. Brunski and S. Heilshorn co-investigators.
22. "Mechanobiology at healing bone-implant interfaces" Pending renewal of #20 above -- NIH National Institute for Biomedical Imaging and Bioengineering, J.A. Helms, J.B. Brunski, and A. Nanci, proposed dates: July 1, 2014 – June 30, 2019, scored at 5<sup>th</sup> percentile, priority score 20, 9R01 DE024000-10A1

### ***PROFESSIONAL AND PUBLIC LECTURES***

1. "Plastics in the Field of Biomaterials and Biomedical Engineering," lecture to the Hudson/Mohawk Section of the Society of Plastics Engineers, Saratoga Springs, NY, November 12, 1980.
2. "Engineering in the Design of Dental Implants," guest lecture to approximately 700 Eng. I students, Spring 1979, 1980.
3. "Engineering and Dental Implants," lecture at New York University Dental Center and Department of Dental Materials Science, May 1980.

4. "Lecture and Laboratory Courses in Biomaterials and Biomechanics at Rensselaer Polytechnic Institute," American Society for Engineering Education, Annual Meeting, Texas A & M, June 22, 1982.
5. "The Implant-Tissue Interface and Measurements of in vivo Forces on Dental Implants," lecture at Department of Bioengineering, University of Pennsylvania, October 12, 1982.
6. "Improved Seating for Pressure Sore Prevention," lecture at Technology Transfer: A Team Approach in Rehabilitation, a workshop sponsored by RPI and Helen Hayes Hospital Research and Training Center, at RPI and Helen Hayes Hospital, November 30 and December 8, 1982.
7. "Biomechanics and Dental Implants," Department of Prosthodontics, Dental School, University of Toronto, May 24, 1986.
8. "Forces on Dental Implants and Interfacial Tissue Response," Alabama Implant Study Group, Alabama Implant Congress XII, 1986, May 1-4.
9. "Biomechanical Variables Affecting the Implant Tissue Interface," Implantology Today, Columbia University School of Dental and Oral Surgery, May 30-31, 1986.
10. "Forces on Dental Implants and the Biology of the Implant/Tissue Interface," April 6, 1987 at a Symposium entitled Dental Implant Research: Current Status and Future Directions, University of North Carolina at Chapel Hill, School of Dentistry.
11. "Biomechanical Testing and Histological Evaluation of 'Osseointegrated' Systems," April 10-12, 1987 at Symposium III Dental Implant Research, American Academy of Implant Dentistry Research Foundation, Forsythe Dental Center, Boston, MA.
12. "Biomechanics of Dental Implants and Interfacial Tissues," presented to Technical/Management Staff of Noblepharma AB, Gothenburg, Sweden, August 17, 1987.
13. "Quantification of Osseointegrated Bone/Implant Interfaces," presented to dental school faculty and staff at the Brånemark Clinic, Dental School, University of Gothenburg, Gothenburg, Sweden, August 19, 1987.
14. "Biomechanics of Dental Implants and Interfacial Tissues," presented at Annual Meeting of the American College of Prosthodontists, October 10, 1987, San Diego, CA.
15. "Biomechanics of Dental Implants and Interfacial Tissues," at Loma Linda School of Dentistry, Department of Oral Implantology, October 12, 1987.
16. "Biomechanics of Dental Implants and Interfacial Tissues," at Dental School of the Medical College of Georgia, October 22, 1987.
17. "Biomechanics of Dental Implants," NYU Dental School, to third-year dental students, as part of a one-semester lecture series on dental implants (once per year as part of a program, 1987-present).
18. "Histomorphological Nature of Osseointegration under Different States of Loading *In Vivo*," at 3rd Annual Meeting of the Academy of Osseointegration, March 4-5, 1988, Marriott Park Central Hotel, Dallas, TX.

19. "Bioengineering Aspects of Dental Implants," lecture to Albany- Schenectady-Troy, NY, Dental Implant Study Group, March 22, 1988, Albany, NY.
20. "Bioengineering Critique of the FDA's Draft Guidance on Endosseous Dental Implants," FDA Meeting, Rockville, MD, December 16, 1988.
21. "Current Investigations into the Nature of the `Osseointegrated' Dental Implant-Tissue Interface," invited seminar to the Faculty of Dentistry, University of Toronto, January 12, 1989.
22. "Wound Healing at an Implantation Site: Biomaterial and Biomechanical Factors," invited seminar as part of a continuing education program entitled "Surgical and Restorative Techniques for the Brånemark Course" at the School of Dental Medicine, University of Pennsylvania, Philadelphia, PA, January 26, 1989.
23. "Current Research on Dental Implant Biomaterials and Biomechanics," invited seminar as part of a continuing education program entitled "Maxi-Course In Oral Implantology" at Brookdale Hospital Medical Center, February 3, 1989, Brooklyn, NY.
24. "Biomaterials and Biomechanics in Dental Implant Design," invited seminar at the Southwest Institute of Dental Implantology, Inc., May 18, 1989, Houston, TX.
25. "Biomechanics of Implant Design," invited seminar at the 1989 Core-Vent Symposium, May 19, 1989, Washington, DC.
26. "Biomechanics and Bone Remodeling Around Dental Implants," invited presentation at the 1989 Sun Valley Hard Tissue Workshop, August 6-11, 1989, Sun Valley, ID.
27. "Wound Healing at an Implantation Site: Biomaterial and Biomechanical Factors," presented at a continuing education course entitled "Surgical and Restorative Techniques for the Brånemark System," September 8, 1989, Allegheny General Hospital, Pittsburgh, PA.
28. "Biomechanics and Biomaterials in Implant Design," presented at the First International Congress of the Dutch Society for Oral Implantology, Amsterdam, The Netherlands, September 9, 1989.
29. "Recent Research on Bone Development at the Interface of Titanium Dental Implants," Seminar at the Physics Department, Chalmers Institute of Technology, Gothenburg, Sweden, September 11, 1989.
30. "Biomechanical Principles Underlying Use of Dental Implants," continuing education course, Harvard School of Dental Medicine, September 20, 1989.
31. "Dental Implant Biomechanics: Questions to be Answered," presented at World Congress IX of the International College of Oral Implantologists, October 27, 1989.
32. "Biomechanical Failures at the Bone-Implant Interface," Osseointegrated Oral Prostheses, (An International Conference On Problems, Complications and Failures and Their Prevention, Handling and Treatment), November 1-2, 1990, Malmö, Sweden.
33. "Responses of Osseointegrated Interfaces to Loading: Modeling and Remodeling in Relation to Mechanical Usage." Annual Meeting of the Academy of Osseointegration, Boston MA, March 1, 1991.



34. "State of the Science underlying Dental Implant Design," American Academy of Implant Dentistry Research Foundation, Washington DC, April 26-27, 1991.
35. "Intro to Engineering Analysis," IBM Academic Information Systems (ACIS) Conference, July 11-13, 1991. (with K.C. Hinge)
36. "High-End Workstation Tools in Engineering Education: Linking Mathematics, Design and Communication," at EDUCOM '91, San Diego CA, October 1991. (with C. Geisler, K. Hinge and E. Rogers)
37. "Does Biomechanical Loading Influence Interfacial Bone Response Around Brånemark Fixtures?" 4th Annual Reunion Group Meeting on Tissue-Integrated Reconstruction, Spokane Center for Tissue-Integrated Reconstruction (Spokane WA) and The Institute for Applied Biotechnology (Gothenburg Sweden), Coeur d'Alene Idaho, October 17-19, 1991.
38. "Loaded and Control Brånemark Fixtures: Biomechanics and Bone Physiology at the Interface," Dutch Society for Oral Implantology, Amsterdam, The Netherlands, November 9-11, 1991.
39. "How Are Biomechanical Factors Involved in the Success and Failure of Dental Implants?" 37th Scientific Meeting of the Greater New York Academy of Prosthodontics, New York City, December 6, 1991.
40. "Biomechanics and Occlusal Concepts Related to Implant-Supported Restoration," 2nd Annual New York University Implant Symposium, December 13, 1991.
41. "An Interdisciplinary Core Course in Statics, Linear Algebra and Computing as part of the Pre-Engineering Curriculum at Rensselaer Polytechnic Institute," Engineering Foundation Conference on Engineering Education, Curriculum Innovation and Integration, Santa Barbara CA, January 5-10, 1992. (with K.C. Hinge and D. Lagoudas)
42. "Should We Connect Fixtures With Teeth Or Not?" Annual Meeting of the European Society for Osseointegration, Leuven, Belgium, February 9, 1992.
43. "Dental Implants: Biomaterials, Biomechanics and Bioengineering," Postdoctoral Course Program (Fundamentals of Implant Dentistry) Harvard School of Dental Medicine, Boston MA, February 24, 1992.
44. "Implant Biomechanics," The Nobelpharma Challenge Meeting, San Diego CA, March 3, 1992.
45. "Biomechanics of Dental Implants," Implantology Symposium, Boston University School of Dentistry, May 11, 1992.
46. "Biomechanics: Loadings, Stress Transfer and Interfacial Response," 1992 Implant Conference, American Academy of Periodontology, Chicago IL, August 16, 1992.
47. "Biomechanical Considerations in the Use of Dental Implants," Nobelpharma National Team Day, Toronto, Canada, September 17, 1992.

48. "A Discussion of Finite Element Models for Evaluation of Dental Implants," Joint Symposium of the Implantology Research Group and the Dental Materials Group, Annual Meeting of the American Association for Dental Research (AADR), Boston, MA, March 11-15, 1992.
49. "Can Prosthetic Screws Be Permanently Tightened?" 10th Anniversary of Osseointegration in Private Practice, Lansdowne Conference Resort, Lansdowne VA, October 9, 1992.
50. Panel Discussant, "Biological, Material and Mechanical Considerations of Joint Replacement: Current Concepts and Future Directions," Bristol-Myers Squibb/Zimmer Orthopaedic Research Symposium, San Antonio, TX, October 29-November 2, 1992.
51. "Dental Implant Biomechanics," Columbia University, School of Dental Medicine, New York City, NY, December 14, 1992.
52. Brunski, "Biomechanics of Bone," New Orleans Winter Symposium of the American College of Oral Implantology, January 22-23, 1993.
53. "Dental Implants - Biomechanics," Oral Biology Course "Fundamentals in Implant Dentistry", Harvard School of Dental Medicine, Boston, MA, March 1, 1993.
54. "Biomechanics of Implants," Second Annual Symposium on Implantology, Boston University Goldman School of Graduate Dentistry, Boston, MA, May 10, 1993.
55. Brunski, J.B., Hoshaw, S.J., Cochran, G.V.B. and Higuchi, K.W. "Biomechanics of Oral Implants: Relationships Between Biomechanics and Bone Biology at the Bone-Implant Interface," Recent Advances in Oral and Orthopaedic Prostheses, Venice, Italy, May 26-29, 1993.
56. "Biomechanical Considerations in the use of Dental Implants," Nobelpharma Western Team Day ("The Team Approach to Diagnosis and Treatment Planning"), Vancouver, British Columbia, September 24, 1993.
57. "Problems and Complications: Biomechanical Considerations in Load Transmission to Bone and Implant Components," Spokane Center for Tissue-Integrated Reconstruction Reunion Group Meeting, Victoria, British Columbia, September 24, 1993.
58. "Dental Implants - Biomechanics," Oral Biology Course "Fundamentals in Implant Dentistry", Harvard School of Dental Medicine, Boston, MA, October 4, 1993.
59. "Bone/Implant Surface Interactions," American Academy of Implant Dentistry Research Foundation, Dallas TX, October 8, 1993.
60. "The role of biomechanics in case planning with oral implants" presented at "Scientific Frontiers in Clinical Dentistry Symposium" sponsored by NIDR-NIH and held at the Annual Meeting of the American Association for Dental Research, San Antonio TX, 11 March 1995.
61. "Biomechanics of oral implants", presented to the staff of the Dental Service of the Lakland Air Force Base, San Antonio TX, 6 April 1995.
62. "Implant biomechanics: implant loading and effect on bone" presented at the meeting entitled "Basic Research/Clinical Applications", of the Annual Meeting of the American Society of Osseointegration, 7-9 April 1995, San Antonio, TX.

63. "Biomechanics" presented at the Fourth Annual International Symposium on Implantology, Boston University Goldman School of Graduate Dentistry, Boston MA, May 16, 1995.
64. "Biomechanics and implant design" Presented at the Sixth Annual Review in Prosthodontics, University of Michigan School of Dentistry, Ann Arbor MI, Sept. 29, 1995.
65. "Dental implants - biomechanics" presented as part of Oral Biology Course 606, "Fundamentals of Implant Dentistry", Harvard School of Dental Medicine, Oct. 2, 1995.
66. "Does biomechanical damage stimulate interfacial bone response to oral implants?" presented at *The Biological Mechanisms of Tooth Movement and Craniofacial Adaptation*, Oct. 19-21, 1995.
67. "Biomechanical basis of bone-implant reactions" presented at *Osteology 2000*, Vienna, Austria, Nov. 10-11, 1995.
68. "The role of biomechanics in case planning with oral implants", Implant Dentistry Training Program 1995-96, Univ. of Miami, Feb. 17, 1996, Mayfair House, Coconut Grove, FL.
69. "Force and moment distribution among three abutments: staggered vs. in-line arrangement", pp. 57-58, *Proc. 11<sup>th</sup> Annual Meeting of the Academy of Osseointegration* (Feb. 29-Mar. 2, 1996), New York City.
70. "Biomechanics", Fifth Annual International Symposium on Implantology, May 14, 1996, Boston University Goldman School of Graduate Dentistry, Boston MA.
71. "Biomechanical considerations in the use of oral implants", June 11, 1996, NYU College of Dentistry, Dept. of Prosthodontics and Implants, NYC, NY.
72. "Biomechanics of oral implants", Brookdale Hospital Maxicourse on Oral and Maxillofacial Implants, Sept. 22, 1996, NYU Dental School, New York, NY.
73. "Studio/laptop version of Intro to Engineering Analysis (IEA)," presented at *1996 EDUCOM*, Oct. 1, 1996, Philadelphia PA. (with R.L. Spilker)
74. "Dental implants - biomechanics," Oct. 7, 1996, presented as part of Oral Biology Course 606, "Fundamentals of Implant Dentistry", Harvard School of Dental Medicine, Boston, MA.
75. "Biomechanical considerations with dental implants", Oct. 17, 1996, Department of Prosthodontics, Dept. of Prosthodontics, Eastman Dental Center, Rochester, NY..
76. "Biomechanics and implant design" Oct. 24, 1996, Presented at the 7<sup>th</sup> Annual Review in Prosthodontics, University of Michigan School of Dentistry, Ann Arbor MI,.
77. "Biomechanical balancing act: treatment planning for fixed prosthetics", Nov. 8, 1996, Master Clinician Lectures, 11<sup>th</sup> Implant Team System Seminar, Los Angeles, CA.
78. "Biomechanics of misfitting implant crowns and frameworks", Ohio State University School of Dentistry, Jan. 10, 1997.

79. "Dental implant failures: biomechanical considerations" presented at the Implantology Research Group Symposium, Thursday March 20, 1997, at the 1997 IADR Meeting, March 19-23, 1997 Orlando FL.
80. "Dental implants - biomechanics" presented as part of Oral Biology Course 606, "Fundamentals of Implant Dentistry", Harvard School of Dental Medicine, Sept. 29, 1997.
81. "Biomechanics and implant design" Presented at the 8th Annual Review in Prosthodontics, University of Michigan School of Dentistry, Ann Arbor MI, Oct. 24, 1997.
82. "Biomechanics of Immediate and Early Loading of dental Implants." Presented at the "International Workshop on Early and Immediate Loading of Dental Implants: Predictable failure or Predictable Success?", Venice, Italy, Nov. 7-9, 1997.
83. "Introduction to engineering analysis (statics and linear algebra)", presented as part of the session entitled *Mechanics in a Restructured Engineering Curriculum-II*, at the 1997 International Mechanical Engineering Congress & Exposition, Dallas, TX, Tuesday Nov. 18, 1997.
84. "Biomechanics of oral implants", Brookdale Hospital Maxicourse on Oral and Maxillofacial Implants, NYU Dental School, NYC, NY, Dec. 14, 1997.
85. "Biomechanical Risk Factors", presented as a keynote talk at the 1998 Academy of Osseointegration meeting, Atlanta, GA, March 1998.
86. "Preceptorship in Dental Implantology-Biomechanical Aspects of Dental Implants", University of Texas at San Antonio Health Science Center, March 15, 1998
87. "Biomechanical Case Planning with Oral Implants", May 8, 1998 at the Northeastern Gnathological Society, Pierre Hotel, NYC.
88. "*In Vivo* Bone Response to Biomechanical Loading at the Bone-Dental Implant Interface", presented at the 3<sup>rd</sup> Annual Indiana Conference, *Bridging the Gap Between Dental and Orthopaedic Implants*, Indiana University School of Dentistry, May 13-16, 1998.
89. "Implant Biomechanics" Presented at the *Symposium on Implant Controversies and Solutions*, UCLA School of Dentistry, Continuing Dental Education, Los Angeles, CA, May 23, 1998.
90. "Biomechanical Case Planning with Oral Implants", presented at the *Mediterranean Conference on Osseointegration*, June 5-6, 1998, Barcelona, Spain.
91. "*In Vivo* Bone Response to Biomechanical Loading at the Bone-Dental Implant Interface", presented at the 15<sup>th</sup> *International Conference on Oral Biology (ICOB), Oral Biology and dental Implants*, June 28-July 1, 1998, Baveno, Italy.
92. "Mechanics and Linear Algebra of the Bicycle", poster presentation at the June '98 meeting of *Mathematics Throughout the Curriculum II (MATC II)*, sponsored by National Science Foundation, at West Point Military Academy, West Point NY.
93. "Biomechanical aspects of immediate loading", presented at the 1<sup>st</sup> *International Conference on Understanding the Basics of Immediate Loading, The State of the Art*, sponsored by the

- International Study Group for a Predictable Immediate Loading of Orthopaedic and Dental Implants (ISG-PILODI), Klink-Berlin, Sept. 25, 1998.
94. "Biomechanical considerations with dental implants", presented as part of Oral Implantology Course at Eastman Dental Center, Oct. 15, 1998.
  95. "Biomechanical considerations for the zygoma fixture", 1998 Spokane Center for Tissue Integrated Reconstruction Reunion Group Meeting, Hotel Lusso, Spokane WA, Oct. 23-25, 1998.
  96. "Biomechanics and implant design", Ninth Annual Comprehensive Review in Prosthodontics, School of Dentistry, Univ. of Mich., Oct. 29, 1998.
  97. "Preceptorship in Dental Implantology-Biomechanical Aspects of Dental Implants", University of Texas at San Antonio, Health Science Center, Nov. 8, 1998
  98. "Biomechanics of Early Loading of Implants", and "Biomechanical Considerations for Zygomatic Fixtures", at the Reunion Group Meeting, Feb. 27-28, 1999, Coeur D'Alene, Idaho.
  99. "Biomechanics of Osseointegration", presented as part of an Oral Biology course for graduate dentists at Harvard School of Dental Medicine, March 22, 1999.
  100. "Two Problem Areas in Dental Implants: Immediate Loading and Bone-Implant Bonding", a seminar to students and faculty at NYU School of Dentistry, New York, NY, April 7, 1999.
  101. "Mechanics and Linear Algebra of the Bicycle", a workshop-computer lab presentation at the '99 meeting of *Mathematical Sciences and their applications Throughout the Curriculum (MATC)*, sponsored by National Science Foundation, Indiana University, Bloomington, IN, July 9-10, 1999
  102. "Orthodontic Applications of Implants: Biomechanical Issues", 85<sup>th</sup> Annual Meeting of the American Academy of Periodontology, San Antonio TX, Sept. 25-29, 1999.
  103. "Biomechanics and Implant Design", 10<sup>th</sup> Annual Comprehensive Review in Prosthodontics, School of Dentistry, Univ. of Mich., October 31, 1999.
  104. "Biomechanics of Oral Implants", 3.5-hour morning workshop at the 11<sup>th</sup> Annual Implant Maxicourse, sponsored by The Brookdale University Hospital and Medical Center, held at NYU Dental School, NY, Nov. 21, 1999.
  105. "Two Problem Areas in Dental Implants: Immediate Loading and Bone-Implant Bonding", seminar to dental school faculty and students, University of Connecticut Health Center, Farmington, CT, Dec. 2, 1999.
  106. "Preceptorship in Dental Implantology-Biomechanical Aspects of Dental Implants", University of Texas at San Antonio, Health Science Center, Feb. 6, 2000.
  107. "Biomechanics of Dental Implants", presented as part of an Oral Biology course for graduate dentists at Harvard School of Dental Medicine, May 15, 2000.
  108. "Biomechanics", 9<sup>th</sup> Annual International Symposium on Implantology, Boston University Goldman School of Graduate Dentistry, Boston MA, May 16, 2000.

109. "Further understanding of the zygomaticus fixture," Novum Training Course, Spokane Center for Tissue Integrated Reconstruction, Spokane, Washington, September 18, 2000.
110. "The biomechanics of immediate loading and the Brånemark Novum," Novum Training Course, Spokane Center for Tissue Integrated Reconstruction, Spokane, Washington, September 19, 2000
111. "Biomechanical factors influencing implant stability and bone resorption," presented at the 2<sup>nd</sup> *Seminar on Immediate Function*, Nobel-Biocare, Göteborg, Sweden, October 6-7, 2000.
112. "Biomechanical considerations in use of oral implants", presented as part of a course in oral and maxillofacial implants for graduate dentists at Eastman School of Dental Medicine, Rochester, NY, Oct. 26, 2000.
113. "Screw vs. Cylinder vs. Tapered: Pro Screw" presented at *The Great Debate: Which System to Use*, American Academy of Oral and Maxillofacial Surgeons (AAOMS) Dental Implant Conference, Chicago IL Dec. 1-2, 2000.
114. "Biomechanics", 10<sup>th</sup> Annual International Symposium on Implantology, Boston University Goldman School of Graduate Dentistry, Boston MA, May 15, 2001.
115. "Toward a definition of safe vs. dangerous loading at the bone-oral implant interface." Presented at the Annual Meeting of the American Academy of Prosthodontics, Oct. 31-Nov. 3, 2001, New Orleans, LA.
116. "Biomechanics of oral implants", 3-hour morning workshop at the 13<sup>th</sup> Annual Implant Maxicourse, sponsored by The Brookdale University Hospital and Medical Center, held at NYU Dental School, NY, December, 2001.
117. "Biomechanical issues in the use of oral implants." Presented the Delaware Valley Academy of Osseointegration, Feb. 20, 2002, Philadelphia, PA.
118. "Biomechanics of bone and oral implants." Presented to the post-graduate oral surgery, prosthodontic and periodontics residents at Harvard School of Dental Medicine, April 30, 2002, Boston, MA.
119. "Oral implant biomechanics." Presented at the 11<sup>th</sup> Annual International Symposium on Implantology, Boston University Goldman School of Graduate Dentistry, Boston, MA, May 13, 2002.
120. "Biomechanical considerations in the use of oral implants." Presented at the Annual Meeting of the Pennsylvania Prosthodontic Association, June 7, 2002, State College, PA.
121. "The Future of Oral Implants." Presented at the Dean's honorary symposium, Boston University Goldman School of Graduate Dentistry, Boston, MA, September 22, 2002.
122. "Current biomechanical issues with oral implants." Presented at the Dept. of Prosthodontics, Eastman Dental Center, Rochester NY, October 17, 2002.
123. "Biomechanics of oral implants", 8-hour seminar at the 14<sup>th</sup> Annual Implant Maxicourse, sponsored by The Brookdale University Hospital and Medical Center, held at NYU Dental School, NY, December, 2002.

124. "Preceptorship in Dental Implantology: Biomechanical Aspects of Dental Implants", University of Texas at San Antonio, Health Science Center, Feb. 9, 2003.
125. "Current biomechanical issues with oral implants." Presented at the Oneida-Herkimer County Dental Society Lecture Series, April 7, 2003, Utica NY.
126. "Biomechanical aspects of the use of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of osseointegration", Dept. of Restorative Dentistry, Harvard School of Dental Medicine, Harvard University, May 5, 2003, Boston, MA
127. "Biomechanical aspects of immediate loading of oral implants." Spokane Reunion Group, Spokane Center for Tissue Integrated Reconstruction, May 9-10, 2003, Spokane, WA.
128. "Biomechanical and prosthetic design." Part of a 3-person panel of presenters, *12<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 12-17, 2003, Boston, MA.
129. "The role of strain in the healing process of bone-anchored implants" seminar to the Dept. of Mechanical Engineering, University of Alberta, Edmonton, Alberta, 9/25/03
130. "Oral implant bioengineering at macro and molecular levels ", invited speaker at "Celebrating the Past and Facing the Future, 10 Years of Excellence of COMPRU", presented at "COMPRU", the Craniofacial Osseointegration & Maxillofacial Prosthetic Rehabilitation Unit, Misericordia Community Hospital, Edmonton, Alberta, 9/26/03
131. "Mechanobiology at healing bone-implant interfaces" presented at *Biotechnology: Innovation, Opportunity, & Commercialization*, a symposium at Rensselaer Polytechnic Institute, Troy, NY, 10/23/03
132. "Implant Biomechanics", presented at the Prosthodontic Review Course, American College of Prosthodontics (ACP), Chicago, IL, Nov. 13, 2003.
133. "Biomechanical aspects of the use of oral implants" an 8-hour presentation within the *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 15, 2003, New York NY
134. "Biomechanical aspects of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of Implant Dentistry", OB606.CBS, Dept. of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine, Harvard University, March 29, 2004, Boston, MA
135. "Mechanisms of Endosseous Integration", *13<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 10-15, 2004, Boston, MA
136. "Biomechanics", *13<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 10-15, 2004, Boston, MA
137. "Implant Biomechanics", presented at the Prosthodontic Review Course, American College of Prosthodontics (ACP), Chicago, IL, 11/15/04.
138. "Biomechanical aspects of the use of oral implants" an 8-hour presentation within the *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 16, 2004, New York NY

139. "Biomechanical aspects of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of Implant Dentistry", OB606.CBS, Dept. of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine, Harvard University, March 28, 2005, Boston, MA
140. "Biomechanics", *14<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 16, 2005, Boston, MA
141. "Mechanobiology at healing bone-implant interfaces", invited keynote lecture, *30<sup>th</sup> Congress of the Société de Biomécanique*, Brussels, Belgium, 14-16 September, 2005.
142. "Implant biomechanics at the level of prosthodontics and the bone-implant interface", a 4-hour lecture, *Osseointegration Study Club of Southern California*, October 30, 2005
143. "Biomechanics to help case planning with oral implants", presented as a 1-hour "lunch & learning" session, *54<sup>th</sup> Annual Meeting of the American Academy of Implant Dentistry*, Scottsdale, AZ, Oct. 19-23, 2005
144. "Dental implant research at the macro and molecular levels", *54<sup>th</sup> Annual Meeting of the American Academy of Implant Dentistry*, Scottsdale, AZ, October 19-23, 2005.
145. "Biomechanical aspects of the use of oral implants" an 8-hour lecture, *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 5, 2005, New York City, NY
146. "Implant biomechanics at the level of prosthodontics and the bone-implant interface", a 6-hour lecture at the *Center for Tissue Integrated Prostheses*, Spokane, WA, November 11, 2005.
147. "Implant Biomechanics", presented at *Prosthodontics Update 2005: State-of-the-art*, annual review course of the *American College of Prosthodontics*, Chicago, IL, November 17-19, 2005
148. "Engineering approaches for interface design and surface morphology", presented at the Annual Meeting of the *American Academy of Oral and Maxillofacial Surgeons*, December 3, 2005
149. "Oral implant bioengineering at the macro, micro, and molecular levels." A 4-hr. course presented at the *11<sup>th</sup> Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Feb. 11, 2006.
150. "Biomechanical aspects of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of Implant Dentistry", OB606.CBS, Dept. of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine, Harvard University, April 24, 2006, Boston, MA
151. "Biomechanics", *15<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 8, 2006, Boston, MA
152. "Biomechanical aspects of oral implants", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Boston, MA, May 8, 2006
153. "Oral implant bioengineering from the macro to the molecular level", School of Dental Medicine, University of Pennsylvania, Philadelphia, PA, May 17, 2006



154. "Looking backwards and forwards at oral implants", *First William R. Laney Lecture*, Sept. 9, 2006, Department of Prosthodontics, Mayo Clinic, Rochester, MN.
155. "Current biomechanical issues with oral implants." Presented at the Dept. of Prosthodontics, Eastman Dental Center, Rochester NY, October 19, 2006.
156. "Biomechanical aspects of the use of oral implants" an 8-hour presentation within the *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 11, 2006, New York NY
157. "Biomechanical considerations in the use of oral implants", lecture to approx. 80 residents in graduate prosthodontics, VA Medical Center, NY, NY, Nov. 30, 2006.
158. "Dental implant research at the macro and molecular levels", *2006 Jerome M. and Dorothy Schweitzer Research Award Lecture*, Greater New York Academy of Prosthodontics (GYNAP), Dec. 1, 2006
159. "Oral implant bioengineering at the macro, micro, and molecular levels." A 3-hr. course presented at the *12<sup>th</sup> Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Feb. 11, 2007.
160. "Mechanobiology at Healing Bone Implant Interfaces: Strain States and Interfacial Response.", presented to the Univ. of Alabama at Birmingham, April 6, 2007, seminar program in Biomedical Engineering.
161. (Keynote presentation) "*The Late Show's* Top-Ten list of embarrassing questions that patients could ask about dental implants", presented at the *12<sup>th</sup> Biennial 2007 International Conference on Reconstructive Preprosthetic Surgery*, April 16-18, 2007, Charleston, SC.
162. "Biomechanical aspects of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of Implant Dentistry", *OB606.CBS, Dept. of Restorative Dentistry and Biomaterials Sciences*, Harvard School of Dental Medicine, Harvard University, April 23, 2007, Boston, MA
163. "Biomechanics", *16<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 14, 2007, Boston, MA
164. "Biomechanical aspects of oral implants", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Boston, MA, May 14, 2007
165. Implant loading & interfacial tissue response: recent research", presented at the Keystone Dental Technology Symposium, Aug. 16-19, 2007, Broadmoor Resort, Colorado Springs, CO
166. "Biomechanics in case planning", presented to the *Academy of Comprehensive Dental Studies*, Morristown, NJ, Oct. 24, 2007
167. "Oral implant bioengineering at the macro, micro, and molecular levels." A 3-hr. course presented at the *13<sup>th</sup> Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Nov. 4, 2007.
168. "Biomechanical aspects of the use of oral implants" an 8-hour presentation within the *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 17, 2007, New York NY.

169. "Implant Loading & Interfacial Tissue Response: Some Recent Translational Research", presented Dec. 5, 2007 at the Portland, OR Dental Implant Study Club, sponsored by Neoss Inc.
170. "Biomechanical aspects of oral implants", a lecture within the graduate dental school course entitled "Fundamentals of Implant Dentistry", *OB606.CBS, Dept. of Restorative Dentistry and Biomaterials Sciences*, Harvard School of Dental Medicine, Harvard University, April 21, 2008, Boston, MA
171. "The healing bone-implant interface: role of micromotion and related strain levels in tissue", presented at *The Toronto Osseointegration Conference Revisited*, May 10, 2008
172. "Biomechanics", *17<sup>th</sup> Annual International Symposium on Implantology*, Boston University Goldman School of Graduate Dentistry, May 12, 2008, Cambridge, MA
173. "Biomechanical aspects of oral implants", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Boston, MA, May 12, 2008
174. "Immediate loading and interfacial response", presented at the *2<sup>nd</sup> Astra World Congress*, Gaylord National Conference Center, Washington DC, June 4-7, 2008
175. "Biomechanics of the Bone-Implant Interface: Some Research Updates", presented at *Club 22 Meeting*, Spokane, WA, August 14, 2008
176. "Biomechanical aspects of the use of oral implants" an 8-hour presentation within the *New York Maxicourse in Oral Implantology*, NYU School of Dentistry, Nov. 8, 2008, New York NY.
177. "Oral implant bioengineering at the macro, micro, and molecular levels." A 3-hr. course presented at the *14<sup>th</sup> Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Nov. 9, 2007.
178. "Replacing Lost Teeth With Implants: Biomechanical Aspects", invited keynote, AIOP's 27th International Congress, *The Bridge: Prosthesis in Extinction*, Bologna, Italy, November 20-22, 2008
179. "The Mechanics of Immediate Loading: Force Distribution and Possible Concerns", invited podium presentation, in a session entitled: *Treatment Approaches to the Partially & Completely Edentulous Atrophic Maxilla – Guided, Unguided or Misguided?* Academy of Osseointegration Annual Meeting, February 26-28, 2009, San Diego, CA
180. "Update on the Biomechanics of Oral Implants", invited presentation at the *57th Meeting of the American Academy of Maxillofacial Prosthetics*, November 2-4, 2009, San Diego, CA
181. "Implant geometries and the impact on bone", invited podium presentation at the *P-I Brånemark Scientific Symposium on Osseointegration and Related Treatment Modalities*, Oct. 29-31, 2009, Göteborg, Sweden
182. "The Mechanical Problem: Considering the Bone Response," invited presentation at the *2009 Dental Implant Conference, American Academy of Oral and Maxillofacial Surgeons*, December 4 – 6, 2009, Chicago, IL
183. "Dental implant bioengineering at macro and molecular levels," invited lecture to graduate dental students in prosthodontics and oral surgery, Loma Linda University, Feb. 16, 2010

184. "Biomechanical Models & Methods in Oral Implant Research," invited seminar to graduate students in a course entitled "Models and Methods in Dental Implant Research", University of Göteborg, Göteborg, Sweden, March 10, 2010.
185. "Implant Biomaterials and Biomechanics: Some Basic Concepts and a Few Case Studies", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Tufts University, Boston, MA, May 19, 2010.
186. "Mechanobiology of the bone-dental implant interface: macro, micro, and molecular views", invited lecture as part of the "Distinguished Lecture Series", College of Dentistry, The Ohio State University, Oct. 27, 2010.
187. "Biomechanical considerations with oral implants", 4-hr. course presented at the 15<sup>th</sup> *Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Nov. 7, 2010.
188. "Biomechanical considerations with oral implants", a 3-hr. course for the Oral Implantology Seminar, Eastman Dental Center, University of Rochester, Rochester, NY, Dec. 10, 2010.
189. "Implant Biomaterials and Biomechanics: Some Basic Concepts and a Few Case Studies", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Tufts University, Boston, MA, April 20, 2011.
190. "Biomechanical considerations with oral implants", 4-hr. course presented at the 17<sup>th</sup> *Preceptorship in Dental Implantology*, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Nov. 6, 2011.
191. "Case planning with attention to biomechanics", presented to a dental implant study group, San Diego, CA, Oct. 27, 2011.
192. "Implant Micromotion: The Good, The Bad and The Ugly", presented at the *Northeast Gnathological Society* (Fall Scientific Seminar) New York City, NY, November 11, 2011.
193. "Successful Osseointegration: The nuts and bolts of bone formation around, and the mechanical loading of, dental implants", presented together with Jill A. Helms at the Spokane Center for Tissue Integrated Reconstruction, Spokane, WA January 27, 2012.
194. "The slant on tilted implants", Limited Attendance Lecture at the 27<sup>th</sup> *Annual Meeting of the Academy of Osseointegration*, Phoenix, AZ, March 1-3, 2012.
195. "Implant Micromotion: The Good, The Bad and The Ugly", Presented at the *American College of Prosthodontists 42<sup>nd</sup> Annual Session*, November 2, 2012, Baltimore, MD.
196. "Implant Biomaterials and Biomechanics: Some Basic Concepts and a Few Case Studies", a lecture within the graduate prosthodontics curriculum, Tufts University School of Dental Medicine, Tufts University, Boston, MA, November 14, 2012.
197. "Biomechanical considerations with oral implants", a 4-hr. course for the Oral Implantology Seminar, Eastman Dental Center, University of Rochester, Rochester, NY, November 16, 2012.

198. “Biomechanical considerations with oral implants”, 4-hr. course presented at the 18<sup>th</sup> Preceptorship in Dental Implantology, Continuing Dental Education, The University of Texas Health Science Center at San Antonio, Dental School, Feb. 2, 2013.
199. “Biomechanical analyses relating to fractures of ‘thin’ mandibles treated with implants”, presented at the 2013 meeting of the *Intenational Association for Oral and Facial Reconstruction*, March 5, 2013, Tampa, FL.
200. “How and why are biomechanics so important in case planning with dental implants?”, presented at Columbia University College of Dental medicine, May 25, 2013.
201. “Golf Instructor Jim McLean Has His Fixes for the Top 10 Death Moves: What’s the Analogy When it Comes to Dental Implants?” presented at the Pennsylvania Prosthodontics Association Meeting, Toftrees Resort, State College PA, June 1, 2013.
202. “Oral Implant Biomechanics: Perspectives of Success and Failure”, presented at Western New England University, Biomedical Engineering Department, July 26, 2013, Springfield, MA 01119
203. “Biomechanics of implant-supported prostheses: from bench tests to clinical results”, a 4-hour workshop presented at the *2013 Latin America Osseointegration Congress*, Sao Paulo, Brazil, Sept. 25-28, 2013.
204. “Biomechanics of solutions for edentulous jaws – with a focus on tilted implants and ‘All-on-4’ ”, presented at the Klinik für MKG-Chirurgie-plastische Operationen, University of Mainz, Germany, March 26, 2014.
205. “Biomechanical Research on Oral Implants: Defining the Problem, Doing the Research, and Publishing the Results”, presented at Harvard School of Dental Medicine, June 17, 2014, as part of a symposium sponsored by The Osteology Foundation.
206. “Mechanobiology at the Immediately-Loaded Oral Implant-Tissue Interface”, presented as part of the Biomechanical Engineering Seminar Series, Stanford University Department of Mechanical Engineering, April 27, 2015.