

Part 5/5

*Clinical, Therapeutic and Rehabilitation
Aspects of Biomedical Engineering*

Track 8: Biorobotics

- 8.1-1: Experiments with a Predictive Display and Shared Compliant Control for Time-Delayed Teleoperation** 1905
Won S. Kim, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA
- 8.1-2: Man/Robot Interactive and Cooperative System for the Cognitively Disabled** 1907
Sukhan Lee, Institute for Robotics and Intelligent Systems, Department of Electrical Engineering, University of Southern California, Los Angeles, CA
- 8.1-3: Kinematic Analysis of a 4 D.O.F. Prosthetic Arm Using Extended Physiological Proprioception** 1909
T. Rahman, R. Seliktar, Dept. of Mech. Eng., Drexel Univ., Philadelphia, PA
- 8.1-4: Using Robotics to Assist in Determining Cognitive Age of Very Young Children** 1911
Carol A. Stanger and Albert M. Cook, Assistive Device Center, California State University, Sacramento, CA
- 8.1-5: Electrical Contraction Control of Chemomechanical Actuator Material** 1913
Makoto Suzuki, Mechanical Engineering Laboratory, Tsukuba, Ibaraki, Japan
- 8.2-1: Flexible Exploration by Human and Robotic Haptic Systems** 1915
Susan J. Lederman* and Roberta L. Klatzky**, *Dept. of Psychology, Queen's Univ., Kingston, Ontario, Canada, **Dept. of Psychology, Univ. of Cal., Santa Barbara, CA
- 8.2-2: Human Haptic Illusions in Virtual Object Manipulation** 1917
E.D. Fasse, B.A. Kay*, N. Hogan, Dept. of Mechanical Engineering, *Brain and Cognitive Sciences, M.I.T., Cambridge, Massachusetts
- 8.2-3: Interaction Strategies for Positioning an Object** 1919
A.J. Hodgson, Medical Eng., Div. of Health Sciences and Tech., MIT, Cambridge, MA
- 8.2-4: Processing of Static Visuospatial Information for Direct and Indirect Reaching Movements** 1921
W.G. Tatton, M.C. Verrier, M.M. Thompson, Depts. of Rehabilitation, Med. & Physiology, Univ. of Toronto, Toronto, Canada
- 8.2-5: Control and Communication of Two Arms** 1924
Xiaoping Yun, General Robotics and Active Sensory Perception (GRASP) Lab., Dept. of Computer and Information Science, University of Pennsylvania, Philadelphia, PA
- 8.3-1: Precision Multi-Segment Bone Positioning Using Computer Aided Methods in Craniofacial Surgical Procedures** 1926
C. Cutting, M.D., B. Grayson, H.C. Kim, Inst. of Reconstructive Plastic Surgery, NY Univ. Med. Center, NY, NY
- 8.3-2: An Image-Directed Robotic System for Precise Orthopaedic Surgery** 1928
Russell H. Taylor*, Howard A. Paul**, Brent D. Mittelstadt**, William Hanson+, Peter Kazanzides*, Joel Zuhars**, Edward Glassman*, Bela L. Musits*, W. Williamson**, William L. Bargar**, IBM T.J. Watson Research Center, Yorktown Heights, NY, **UC Davis School of Medicine, Davis, CA, +IBM Palo Alto Science Center, Palo Alto, CA
- 8.3-3: OrthoDuck - An Image Driven Orthopaedic Surgical Planning System** 1931
William A. Hanson*, Dr. Howard A. Paul**, William Williamson*, Brent Mittelstadt**, *IBM Scientific Center, Palo Alto, CA, **University of California, Davis, CA
- 8.3-4: Redundant Consistency Checking in a Precise Surgical Robot** 1933
Russell H. Taylor*, Peter Kazanzides*, Brent D. Mittelstadt**, Howard A. Paul **, *IBM T.J. Watson Research Center, Yorktown Heights, NY, **UC Davis School of Medicine, Davis, CA
- 8.3-5: Surgical Procedure for Robotic Total Hip Replacement** 1936
H.A. Paul, B.D. Mittelstadt, P. Kazanzides, J. Zuhars, B. Williamson, B. Bargar, T.C. Hsia, University of California, Davis, CA
- 8.4-1: Biologically Based Robot Control** 1938
George A. Bekey*, Rajko Tomovic**, *Computer Science Dept., Univ. of Southern California, Los Angeles, CA, **Electrical Engineering Dept., Univ. of Belgrade, Belgrade, Yugoslavia
- 8.4-2: Anthropomorphic Four Fingered Robot Hand and its Glove Controller** 1940
B. M. Jau, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

- 8.4-3: An Experimental Setup for Investigating Sensor-Based Teleoperated Surgery Procedures** 1942
P. Dario, S. Martelli*, A.M. Sabatini, ARTS Lab., Scuola Superiore S. Anna, Pisa, Italy, *Istituto Ortopedico Rizzoli, Bologna, Italy
- 8.4-4: Robotic Tactile Sensor Based Upon an Electrically-Multiplexed Array of Pressure-Sensitive Field-Effect Transistors** 1944
Edward S. Kolesar, Jr., Douglas G. Ford, Rocky R. Reston, Air Force Institute of Technology, Dept. of Electrical and Computer Engineering, Wright-Patterson AFB, Dayton, OH
- 8.4-5: Inversion of Tactile Data Through a Skin-Like Sensor Sensitive to Stress Components** 1946
Danilo De Rossi*, Gaetano Canepa*, Adolfo Bacci**, Andrea Caiti***, *Centro 'E. Piaggio', Univ. of Pisa, **Istituto di Scienza della Costruzioni, Univ. of Pisa, ***La Spezia & Univ. of Genova, Italy

Track 11: Clinical Engineering

- 11.1-1: Medical Device Incident Management by Biomedical Engineering** 1949
David H. Darnel, University Hospital, State University of New York, Stony Brook, NY
- 11.1-2: "I Heard It Through the Grapevine"** 1950
Matthew F. Baretich, Dept. of Bioengineering, University of Colorado Health Sciences Center, CO
- 11.1-3: Medical Devices Risk Reduction - A Case for a Clinical Engineering Program** 1951
Yadin David, Biomedical Engineering Department, Texas Children's Hospital, TX
- 11.1-4: Reporting Medical Device Hazards to Third Parties: Mandatory Versus Voluntary Programs** 1952
M.E. Bruley, Accident and Forensic Investigation Group, ECRI, Plymouth Meeting, PA
- 11.1-5: Device Recalls and Alerts: Does The FDA Know Where to Go in Your Institution?** 1954
David S. Bell, Ira S. Tackel, Department of Biomedical Instrumentation, Thomas Jefferson University Hospital, Philadelphia, PA
- 11.2-1: Computer Support and Applications for a Large Hospital Based BME Department** 1956
David M. Dickey, Washington Hosp. Center, Washington, DC
- 11.2-2: Managing Technology: The Challenge of Quality Assurance** 1958
J. A. D'Antonio and I. S. Tackel, Department of Biomedical Instrumentation, Thomas Jefferson University Hospital, Philadelphia, PA
- 11.2-3: Technology Management in Kaiser Permanente** 1960
G. J. Gordon, Kaiser Permanente Biomedical Engineering Dept., Berkeley, CA
- 11.2-4: Choosing and Modifying Existing Software for a Clinical Engineering Department** 1961
M. S. Bernstein, Methodist Hospital of Indiana, Indianapolis, IN
- 11.2-5: Equipment Information Management Managing the Future** 1963
Darren B. Selsky and Ira S. Tackel, Department of Biomedical Instrumentation, Thomas Jefferson University Hospital, Philadelphia, PA
- 11.3-1: The UK Health Service Review - Its Impact on Clinical Engineering** 1965
Alastair G. McDeller, The Bart's Centre for Medical Electronics, St. Bartholomew's Hospital, London, England
- 11.3-2: The Assessment of Electromedical Equipment in the United Kingdom** 1967
P.J. Drury and M.M. Black*, Institute for Biomedical Equipment Evaluation and Services, *Dept. of Medical Physics and Clinical Engr., Univ. of Sheffield, Sheffield, United Kingdom
- 11.3-3: Bio-Medical Equipment Maintenance in the Developing Countries: Some Issues** 1969
R.S. Khandpur, Centre for Electronics Design and Technology, Punjab, India
- 11.3-4: Role of the Biomedical Engineer in the Pharmaceutical Industry** 1971
S. A. O'Connor and J. F. Hare, Smith Kline Beecham Pharmaceuticals Research and Development, The Frythe, Welwyn, Herts, UK
- 11.3-5: A Practical Review of the Clinical Engineering Requirements of the Management of Acute Renal Failure in Critically Ill Patients** 1973
C. Aldridge, James E. Tattersal, R. N. Greenwood, Lister Renal Unit, Lister Hospital, Stevenage, UK
- 11.3-6: A New Interdisciplinary Association: The Romanian Society for Clinical Engineering and Medical Computing** 1975
Simion Pruna, University Hospital, Bucharest, Romania
- 11.4-1: The Clinician and the Biomedical Engineer - Teamwork - Not the Prima Donna Syndrome** 1977
D.J. Wilkinson, Dept. of Anaesthesia, St. Bartholomew's Hosp., West Smithfield, London
- 11.4-2: Clinical Engineering Certification** 1978
F.R. Painter, Dept. of Biomedical Eng., Bridgeport Hosp., Bridgeport, CT

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| 11.4-3: Ideal Educational Requirements for the Clinical Engineer | 1980 |
| G.R. Goodman, Dept. of Biomed. Eng., Texas Children's Hospital, Houston, TX | |
| 11.4-4: Ethical Questions in Biomedical Engineering Research | 1981 |
| Subrata Saha, Department of Orthopaedic Surgery, LSU Medical Center, Shreveport, LA | |
| 11.4-5: The Role of the Professional Advisory Committee in the Formation of A Curriculum for Biomedical Engineering | 1983 |
| M.T. Chier, Dept. of Electrical Eng & Comp. Science, Milwaukee School of Eng., Milwaukee, WI | |
| 11.5-1: United States Air Force Medical Logistics System Medical Equipment Maintenance Module | 1985 |
| D.R. Minsent, CCE Air Force Medical Logistics Office, Clinical Eng. and Tech. Services Branch, Fort Detrick, Frederick, MD | |
| 11.5-2: Equipment Management With the Hoskyns Maintenance Management System | 1987 |
| S. A. O'Connor, P. S. Cochran, R. A. Marden and J. F. Hare, Smith Kline Beecham Pharmaceuticals Research and Development, The Frythe, Welwyn, Herts, UK | |
| 11.5-3: Computer Based Medical Equipment Management System - Integrating People and Equipment Management Concepts | 1989 |
| M. I. Gullikson, Biomedical Engineering Dept., Texas Children's Hospital, Houston, TX | |
| 11.5-4: First Call - A National Dispatch System | 1990 |
| Wayne A. Morse, SpaccLabs, Redmond, WA | |

Track 13: Critical-Care Monitoring and Control

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| 13.1-1: Clinical Application of ECG R-Wave Triggered, Ensemble-Averaged Impedance Waveforms | 1991 |
| M. Muzi, J.A. Barney, T.J. Ebert, J.J. Smith, Depts. of Anesthesiology and Physiology, The Medical College of Wisconsin, Milwaukee, WI | |
| 13.1-2: Clinical Application of An Audio Ectopic Beat Detector | 1992 |
| Lloyd A. Marks*, Scott C. Smith**, Timothy J. Brophy**, Robert J Grane**, Thomas W. Moore**, *Temple Univ. Dept. of Ped., St. Christophers Hosp. for Children, Philadelphia, Pa, **Drexel Univ., Dept. of Biomedical Eng., Philadelphia, PA | |
| 13.1-3: Real-Time Analysis of the Fetal Heart Rate | 1994 |
| D.L. Houze de L'Aulnoit, R.J. Beuscart, G. Brabant, L. Corette, M. Delcoix, Service de Gyn., Obstetric, Hopital St. Philibert, Lomme, France | |
| 13.1-4: Evaluation of Impedance Hematocrit Measurement Devices over a Wide Range of Hematocrits | 1996 |
| M. S. Allen*, R.B. Beard, Biomedical Eng. and Science Inst., Drexel Univ., *ECRI, Plymouth Meeting, PA | |
| 13.1-5: Plastic Induced ECG Noise on Cardiopulmonary Bypass | 1998 |
| A. Wald, J. Gilbert Stone, and Hoshang J. Khambatta, Department of Anesthesiology, Columbia-Presbyterian Medical Center, NY | |
| 13.1-6: Smart Alarms in Anesthesia Heart Rate and ECG Monitoring and Event Recognition Using Neural Network and Algorithmic Methods | 2000 |
| Stuart R. Hameroff, Mohammad J. Navabi, Richard C. Watt, Kenneth C. Mylrea, Advanced Biotechnology Lab., Dept. of Anesthesiology, University of Arizona, Tucson, AZ | |
| 13.2-1: Clinical Applications of Near Infrared Spectroscopy | 2002 |
| M.S. Thorniley, L.N. Livera*, Y.A.B.D. Wickramasinghe, P. Rolfe, S.A. Spencer*, Univ. of Keele, Dept. Biomedical Engr. and Medical Physics, *North Staffs Maternity Hospital, Neonatal Unit, Hartshill Stoke on Trent, Staffs., UK | |
| 13.2-2: Non-Invasive Estimation of Cerebral Oxygenation and Oxygen Consumption Using Phase-Shift Spectrophotometry | 2004 |
| D.A. Benaron*, C.D. Kurth, J. Steven, L.C. Wagerle, B. Chance, M. Delivoria-Papadopoulos, Depts. of Physiology, Anesthesiology, Ped., & Biochem/Bio-Phys., Univ. of PA Schl of Med. & Children's Hosp. of Philadelphia, PA | |
| 13.2-3: Motion Artifact in Pulse Oximetry | 2007 |
| M.R. Neuman and N. Wang, Case Western Reserve University, Cleveland, OH | |
| 13.2-4: A Controlled Motion Artifact Study of EKG Synchronization on Pulse Oximeters | 2009 |
| L.K.L. Lum, P.W. Cheung, Microsensor Res. Lab., Washington Tech. Center & Center for Bioeng., Univ. of Washington, Seattle, WA | |
| 13.2-5: Pulse Oximeter Calibrator Based on a Liquid-Crystal Light Valve | 2012 |
| G.X. Zhou, J.M. Schmitt, L. Eldridge, and E.C. Walker, Biomedical Engr., and Instrumentation Program, NCRP, and Warren G. Magnuson Clinical Center, Nat'l. Institutes of Health, Bethesda, MD | |

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| 13.2-6: Remote Medical Consultation Via High Definition Video Systems | 2014 |
| Yadin David, Biomedical Engineering Department, Texas Children's Hospital, Houston, TX | |
| 13.3-1: Computers in Critical Care | 2015 |
| Louis C. Sheppard, University of Texas Medical Branch, Galveston, TX | |
| 13.3-2: Neural Network Estimation of Anesthetic Level Using EEG Spectral Signatures | 2017 |
| R.C. Watt, M.J. Navabi, P.J. Scipione, S.R. Hameroff, E.S. Maslana, Advanced Biotechnology Laboratory, Dept. of Anesthesiology, Univ. of Arizona College of Medicine, Tucson, AZ | |
| 13.3-3: Pumpsim: A Software Package for Simulating Computer-Controlled Drug Infusion Pumps | 2019 |
| G.E. Hamann, D.J. Doyle, Inst. of Biomedical Eng., Univ. of Toronto, Toronto, Ontario, Canada | |
| 13.3-4: Knowledge Based Supervision of Dynamic Ventilatory Therapy | 2021 |
| C. Hernandez, B. Arcay, V. Moret, J.E. Arias, Dept. of Applied Physics, University of Santiago, La Coruna, Spain | |
| 13.3-5: A Total Support System for In-House Transport of Critically Ill Patients | 2023 |
| Marcia S. Kemper, Allen I. Human, Alvin Wald, Dept. of Anesthesiology, Columbia-Presbyterian Medical Center, New York, NY | |

Track 28: Sleep and Respiratory Control Dynamics

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| 28.1-1: Obstructive Sleep Apnea in Infants at Low and Increased Risk for SIDS | 2025 |
| T. Hoppenbrouwers, J.E. Hodgman, L. Pollock and L.A. Cabal, Newborn Service, LA+USC Medical Center, Dept. of Pediatrics, Univ. of Southern California School of Medicine, Los Angeles, CA | |
| 28.1-2: Sleep, Breathing, and Arousal Patterns Among Co-Sleeping Human Mother-Infant Pairs: Implications for the Study of SIDS | 2027 |
| J. McKenna and S. Mosko*, Dept. of Anthropology and Sociology, Pomona College, *Dept. of Neurology, University of California, School of Medicine, Irvine, CA | |
| 28.1-3: Is REM Sleep a Period at Risk after Stress in Healthy Infants? | 2029 |
| Cl. Gautier, E. Canet, D. Berterottiere, Lab. Physiol., INSERN CJF, Clamart, France | |
| 28.1-4: Polygraphic Assessment System for Infants at Risk from SIDS | 2031 |
| Richard Dove*, Richard Fright*, Rodney Ford**, Craig Tuffnell***, Jeff Brown**, *Dept. of Medical Physics & Bioeng., Christchurch Hosp., **Dept. of Paediatrics, Christchurch Hosp., ***Electrical and Electronic Eng. Dept., Univ. of Canterbury, Christchurch, New Zealand | |
| 28.1-5: Sleep/Waking Variability in Sudden A-Ventilatory Event (S.A.V.E.) Infants at High Risk for SIDS and Controls | 2033 |
| A. C. Cornwell, Albert Einstein College of Medicine, NY | |
| 28.2-1: Parameterization of Sequence Dependent Clustering in Fetal Breathing Rates | 2034 |
| P. Cheng, G. Dwyer, J.A. Decena, H.H. Szeto, Dept. of Pharmacology, Cornell University Medical College, New York, NY | |
| 28.2-2: Effect of Theophylline on Cerebral Blood Flow and Energy Metabolism Response to Asphyxia in Newborn Piglets | 2036 |
| J.M. Goplerud, L. C. Wagerle, L. Shaw and M. Delivoria-Papadopoulos, Depts. of Pediatrics and Physiology, Univ. of Pennsylvania, Philadelphia, PA | |
| 28.2-3: Mechanisms Producing Ventilatory Periodicities | 2037 |
| A. I. Pack, A. Gottschalk, G. Maislin, J. B. Neilly, University of Pennsylvania School of Medicine, Philadelphia, PA | |
| 28.2-4: REM Sleep Abnormality in Patients with Sleep Apnea | 2039 |
| June M. Fry, Arthur J. Kranz, Mark A. DiPhillipo, Division of Somnology, Department of Neurology, Medical College of Pennsylvania, Philadelphia, PA | |
| 28.2-5: Bispectral Analysis of the Rat EEG during REM Sleep | 2041 |
| T. Ning, J.D. Bronzino, Dept. of Eng. & Comp. Science, Trinity College, Hartford, CT | |
| 28.3-1: Monitoring Dynamic and Reciprocal Interacting Biosystems: Sleep and Thermoregulation | 2043 |
| D.E. Sewitch, N.B. Kribbs, D.F. Dinges, Unit for Experimental Psychiatry, The Institute of PA Hospital, Dept. of Psychiatry, Univ. of PA School of Med., Philadelphia, PA | |
| 28.3-2: A Multi-Angle Method for Deriving the Temperature Distribution in Biological Structures with Microwave Radiometry | 2046 |
| Jean Montreuil and Manfred Nachman, Dept. of Electrical Engineering, Ecole Polytechnique de Montreal, Canada | |

- 28.3-3: Maturation of Heart Rate Variability in Children During the Awake State** 2047
 Sherwin T. Nugent* and John P. Finley**, *Depts. of Engineering and **Pediatrics, Dalhousie Univ., Halifax, Nova Scotia, Canada
- 28.3-4: Blood Pressure and Heart Rate Variability Explained by Chemoreceptor Reflexes in the Obstructive Sleep Apnea Syndrome** 2049
 J.G. van den Aardweg and J.M. Karemaker, Depts. of Internal Medicine and Physiology, Academic Medical Centre, Amsterdam, The Netherlands
- 28.3-5: The Arresting Effect of Fragrance on Inclining Sleep** 2051
 K. Mochizuki, Y. Suzuki, T. Kihara, F. Yano, S. Ninomija, College of Science & Engineering, Aoyama Gakuin Univ., Tokyo, Japan

Track 2: Bioengineering in Dentistry

- 2.1-1: Three-Dimensional Measurement of Dental Cast Profiles and its Applications to Orthodontics** 2052
 K. Yamamoto, H. Morikawa, A. Tomochika*, S. Hayashi*, S. Nakamura*, T. Mikami, Div. of Biomed. Eng., Fac. of Eng., Hokkaido Univ., Sapporo, Japan, *Dept. of Ortho., Schl of Dentistry, Hokkaido Univ., Sapporo, Japan
- 2.1-2: Quantitative Assessment of Anatomical Change in the Human Dentition** 2054
 R. DeLong, W.H. Douglas Biomaterials Research Center, University of Minnesota School of Dentistry, Minneapolis, MN
- 2.1-3: Digital Imaging Applications for the Evaluation of Microstructures of Dental Biomaterials** 2056
 T.K. Vaidyanathan*, K. Vaidyanathan, S. Laxminarayan*, *Univ. of Med. & Dentistry of NJ, Newark, NJ
- 2.1-4: Geometric Evaluation of the T-Scan Dental Arch Reconstruction by a Simple Image Processing System** 2058
 G. Magenes* and C. de Rysky**, *Dipartimento di Informatica e Sistemistica, Università di Pavia, Italy, **Clinica Odontoiatrica, Università di Pavia, Italy
- 2.2-1: Computer Assisted Analysis and Design of Craniofacial Surgical Procedures** 2060
 O. Antonyshyn, S.T. Nugent*, P. Gregson** Div. Plastic Surgery, Dalhousie Univ., *Dept. of Eng., Dalhousie Univ **Dept. of Elect. Engineering, TUNS Halifax, Nova Scotia, Canada
- 2.2-3: Real Time Acquisition of the Three Dimensional Coordinates of the Face** 2062
 M.D. Fox, Dept. of Elect. & Systems Eng., Univ. of CT, Storrs, CT
- 2.2-4: Surface Area Measurement with Structure Light** 2064
 Heesung Jun and Stanley M. Dunn, Department of Electrical and Computer Engineering, Rutgers University, Piscataway, NJ
- 2.2-5: Modeling and Automatic Classification of the Electromyographic Signal Application to the Detection & Therapeutic Follow Up of Cranio-Mandibular Disorders** 2066
 J.J. Moog*, F. Gasmi**, F. Castanie**, and J. Perisse**, *Faculte de Chirurgie, Dentaire de Toulouse, France, **ENSEEIH, Toulouse, France
- 2.3-1: A Morphologically Aided Technique for Quantitative Subtraction of Dental Radiographic Images** 2068
 M.K. Jeffcoat, M.S. Reddy, and R.L. Jeffcoat*, University of Alabama School of Dentistry, *Southern Research Institute, Birmingham, Alabama
- 2.3-2: The Fractal Dimension of the Trabecular Pattern in Patients with Increased Risk of Alveolar Ridge Resorption** 2071
 Paul F. van der Stelt, Wil G.M. Geraets, Department of Oral Radiology, Academic Center for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands
- 2.3-3: Compensating for Non-Linear Errors in Quantitative Dental Digital Subtraction Radiography** 2073
 M.S. Reddy, R.L. Webber, J.R. Patel, and M.K. Jeffcoat, University of Alabama School of Dentistry, Birmingham, AL
- 2.3-4: Finding Invariant Anatomical Relationship in Dental Radiographs** 2076
 Ling Yen and Stanley M. Dunn, Dept. of Electrical and Computer Engr., Rutgers Univ., Piscataway, NJ, Paul F. van der Stelt, Dept. of Oral Radiology, Academic Ctr for Dentistry, Amsterdam, The Netherlands
- 2.3-5: Real Time Tooth Position Measurements for Digital Dental Subtraction Radiography** 2078
 G.C. Burdea, S.M. Dunn and C. Immandorf, Elec. & Comp. Engr. Dept., Rutgers University, Piscataway, NJ

Track 4: Biomaterials

- 4.1-1: Functional Interactions Between the Fibrosa and the Ventricularis of Aortic Valve Leaflets** 2080
 I. Vesely, R. Noseworthy The John P. Robarts Res. Inst., Depts. of Chem. & Biochem. Eng. & Med. Biophysics, Univ. of Western Ontario, London, Canada

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| 4.1-2: | Characterization of a High Performance Duplex Stainless Steel for Orthopedic Applications | 2082 |
| | A. Cigada*, F. Amici Jr.**, M. Cavallini**, G.DeSantis†, A.M.Gatti†, M. Giacomazzi‡, G.Rondelli§, A. Roos*, B. Vicentini§, D. Zaffet, *Politecnico di Milano, Milan, Italy, **Universita La Sapienza di Roma, Rome, Italy, †Universita di Modena, Modena, Italy, ‡G. Cremascoli S.p.A., Milan, Italy, §Istituto Tecnologia Materiali del Consiglio Nazionale delle Ricerche, Milan, Italy, +Sandvik Steel, Sandviken, Sweden | |
| 4.1-3: | Life Prediction of Cardiac Leads Under Cyclic Loading | 2085 |
| | Charles Martin, W. Kinzy Jones and Wei Jiang, Mechanical Engineering Department, Florida International University, Miami, FL | |
| 4.1-4: | Electrochemical Corrosion Behaviour of Antithrombogenic Amorphous Silicon Carbide Coatings | 2087 |
| | A. Bolz, B. Brem, M. Schaldach, Dept. of Biomedical Engineering, University Erlangen-Nurnberg, Erlangen, West Germany | |
| 4.1-5: | Endocapsular Crystallophakia | 2090 |
| | N.I. Afanasyeva, V. V. Agafonova*, A.I. Ivashina*, N.N. Plvovarov*, A.N. Popov**, V.M. Fomin**, Y.V. Zalkin**, USSR Academy of Science, *Int. Res. and Technology Complex, ** All-Union Res.Institute, Moscow, USSR | |
| 4.2-1: | Some Aspects of Titanium as a Biomaterial | 2091 |
| | Ingemar Lundstrom, Pentti Tengvall, Hans Elwing, Laboratory of Applied Physics, Linkoping Institute of Technology, S-581 81 Linkoping, Sweden | |
| 4.2-2: | A Study on the Sintering of B-Tricalciumphosphate Bioceramics with Na4P2O7 10H2O Addition | 2093 |
| | Feng-Huei Lin*, Min-Hsiung Hon**, Yi-You Huang*, *Dept. of Biomedical Engr., Nat'l Taiwan Univ. Hospital, Tainan, Taiwan, R.O.C. **Dept. of Metallurgy and Materials Engr., Nat'l Cheng Kung Univ., Taiwan | |
| 4.2-3: | Anesthese Modified Maleic Anhydride Cyclohexyl-1,3-Dioxepin Copolymer. Preperation and Potential Medical Application | 2097 |
| | C. Uglea, R. M. Ottenbrite, H. Offenber*, A. Grecianu and I. Negulescu, Center of Biological Researches, Issay Romania, *Virginia Commonwealth Univ., VA | |
| 4.2-4: | Development of Gelatin Water Phantom used for Simulation of Biological Tissues in the 20-110 MHz Band | 2099 |
| | M. Nadi, G. Prieur, and C. Marchal*, L.I.E.N., Nancy, France, *Nancy Cancer Centre, Brabois, France | |
| 4.2-5: | Microencapsulated Absorbent System in WAKM Environment | 2101 |
| | S. Basu, G. Venkidachalam, and U.N. Bhowmick, Department of Chemical & Biomedical Engineering, Indian Institute of Technology, Bombay, India | |
| 4.2-6: | Biocompatibility and Stimulating Electrodes | 2103 |
| | R.B. Beard, Dept. of ECE/Biomedical Engineering and Science Institute, Drexel University, Philadelphia, PA | |

Track 5: Biomechanics

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| 5.1-1: | Selecting A Suitable Biomechanics Platform Measure of Sway | 2105 |
| | S.S. Hasan, D.N. Goldner*, M.J. Lichtenstein**, A.J.J. Wood*, R.G. Shiavi, Human Perf. Lab. and *Dept. of Pharmacology, Vanderbilt Univ. Schl of Med., Nashville, TN, **Audie L. Murphy Mem. VA Hosp. | |
| 5.1-2: | Pediatric Seated Stability: An Instrumentation System | 2107 |
| | S. A. Riedel, Dept. of Electrical & Computer Engr., Marquette University, Milwaukee, WI | |
| 5.1-3: | Functional Aspects of the Anticipatory Postural Adjustments that Accompany a Rapid Upward Arm Swing are Revealed in Model Simulations | 2109 |
| | C. F. Ramos, L. W. Stark, Neurology Unit, School of Optometry, Univ. of CA, Berkeley, CA | |
| 5.1-4: | Effect of the Filtered Visual Feedback Information on Postural Control | 2111 |
| | M. Yoshizawa, H. Takeda, M. Ozawa, N. Honma, Y. Sasaki, Dept. of Elect. Eng., Faculty of Eng., Tohoku Univ., Sendai, Japan | |
| 5.1-5: | Analysis of Human Functional Mobility | 2113 |
| | S.C. Koenig, J.R. LaCourse, A.C. Seidel, Bioeng. Lab., Dept. of Computer and Electrical Eng., Univ. of New Hampshire, Durham, NH | |
| 5.1-6: | Resonance of the Force-Driven Harmonic Oscillator as the Basis for Preferred Cadence in Human Gait: Theory and Data | 2114 |
| | K. G. Holt*, J. Hamill**, and R. O Andres**, *Dept. of Physical Therapy, Boston University, **Dept. of Exercise Science, University of Massachusetts, MA | |
| 5.2-1: | An Airjet Perturbation Device and Its Use in Elbow Posture Mechanics | 2116 |
| | Y. Xu*, I.W. Hunter**, J.M. Hollerbach**, and D.J. Bennett*, *MIT Artificial Intelligence Lab., Cambridge, MA, **Dept. Biomed. Engr., McGill Univ., Montreal, Canada | |
| 5.2-2: | A Biomechanical Model of Passive Wrist Motion in Spastic Cerebral Palsy | 2118 |
| | Gerald F. Harris, Laurel J. Benson*, Terry R. Light* and Donald V. Matesi*, Dept. BIEN, Marquette University, Milwaukee, WI, *Shriners Hospital, Chicago, IL | |

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| 5.2-3: | Parameters of a Human Thumb Model | 2120 |
| | Seltn S. Hacısalihzade*, Constance F. Ramos**, Guillermo Peretti*, *Swiss Federal Institute of Technology, Zurich, Switzerland, **University of California, Berkeley, CA | |
| 5.2-4: | Human Hand Modeling by Homogeneous Transformation | 2122 |
| | Said M. Megahed, Kuwait Univ., College of Eng. & Petroleum, Mechanical Eng. Dept., Safat, Kuwait | |
| 5.2-5: | The Effects of Continuous and Pulsed Ultrasound on the Recovery from Muscle Fatigue | 2124 |
| | Li Wang, R. Patterson, C. Ellingham, Dept. of Physical Medicine & Rehab., Univ. of Minnesota, Minneapolis, MN | |
| 5.3-1: | Measuring Impulse Loads on the Human Spine in Vivo | 2126 |
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