POSTER PROGRAM

01 - Artificial biomaterials

[P01.01] **Biocompatibility of hydroxyapatite-carbon nanotube composite for orthopedic implants with improved mechanical properties**
D. Lahiri*, F. Rouzaud, A. Keshri, L. Kos, A. Agarwal, *Florida International University, USA*

[P01.02] **Development of small-diameter vascular grafts based on silk fibroin from bombyx mori for vascular regeneration**
Y. Nakazawa*[1], K. Kajimoto[2], K. Miyauchi[2], M. Daita[2], M. Sata[3], T. Asakura[1], et al *[1]Tokyo University of Agriculture and Technology, Japan, [2]Juntendo University, Japan, [3]The University of Tokushima, Japan*

[P01.03] **Elastic modulus and hardness of rough, porous and bioactive titanium anodic films**
N.K. Kuromoto*, G.B. Souza, G.G. Lima, A. Mikowski, P.C. Soares, C.M. Lepienski, et al *Universidade Federal do Paraná, Brazil*

[P01.04] **Surface characteristics and biocompatibility of titanium anodized in phosphoric acid solution at different voltages**
Z.X. Chen*, Y. Takao, W.X. Wang, T. Matsubara, L.M. Ren, *Kyushu University, Japan*

[P01.05] **Effect of soaking in phosphate buffered saline on compressive strength of porous bioactive ceramics**
M. Kikuchi*, *National Institute for Materials Science, Japan*

[P01.06] **Efficacy of bone regeneration with bioabsorbable organic/inorganic composite barrier membranes**
Y. Koyama*[1], M. Kikuchi[2], K. Edamura[3], S. Tanaka[3], K. Takakuda[1], *[1]Tokyo Medical and Dental University, Japan, [2]National Institute for Materials Science, Japan, [3]Nihon University, Japan*

[P01.07] **Mechanical properties of microwave sintered zirconia**
C. Reidy*[1], S. Hampshire[1], T. Fleming[1], M. Towler[1,2], *[1]University of Limerick, Ireland, [2]Alfred University, USA*

[P01.08] **Fabrication and characterization of a Ti alloy/Al2O3 functionally graded material**
D. Gastaldi*[1], E. Bertarelli[1], D. Carnelli[1], P. Vena[1], F. Casari[2], A. Molinari[2], *[1]Politecnico di Milano, Italy, [2]University of Trento, Italy*

[P01.09] **Nanomechanical and nanotribological properties of bioactive titanium surfaces prepared by alkali treatment**
G.B. de Souza[1,2], H.A. Ponte[1], C.M. Lepienski[1], C.E. Foerster[3], N.K. Kuromoto[1], P. Soares*[4], *[1]Universidade Federal do Paraná, Brazil, [2]Universidade Estadual de Maringá, Brazil, [3]Universidade Estadual de Ponta Grossa, Brazil, [4]Pontifícia Universidade Católica do Paraná, Brazil*

[P01.10] **Effect of voltage on mechanical properties of a biofunctional oxide layer obtained by anodic oxidation**
P.R. de Souza[1], R.D. Torres[1], C.M. Lepienski[2], N.K. Kuromoto[2], J.E. May[3], P. Soares*[1], *[1]Pontifícia Universidade Católica do Paraná, Brazil, [2]Universidade Federal do Paraná, Brazil, [3]Synthes Industry, Brazil*

[P01.11] **Influence of interstitial oxygen in the elasticity modulus of binary Ti alloys**
C.R. Grandini*[1], A.P.R.A. Claro[2], F.B. Vicente[1], J.R.S. Martins Jr.[1], L.M. Silva[1], R.O. Araújo[1], et al *[1]UNESP, Grupo de Relaxações Anelásticas, Brazil, [2]UNESP, Faculdade de Enegnharia de Guaratinguetá, Brazil*

[P01.12] **Strontium containing bioactive glass coatings for medical implants**
N. Lotfibakhshaiesh*, E. Gentleman, M. O'Donnell, M.M. Stevens, R. Hill, *Imperial College London, UK*

02 – Biomimetics

[P02.01] **Investigation of corneal nano-biomechanical properties using depth-sensing indentation**
B. Tang*, S.Y. Li, K.S. Wu, K.F. So, D.S.H. Wong, A.C.Y. Lo, *The University of Hong Kong, China*

03 - Deformation under load

[P03.01] **Deformation behavior of human dentin under uniaxial compression**
E. Buzova[1], D. Zaitsev[2], G.I. Ron[1], P. Panfilov*[2], *[1]Ural State Medical Acad, Russia, [2]Ural State University, Russia*

[P03.02] **Effects of cementum-dentin junction and cementum on the mechanical response of tooth supporting structure**
L.M. Ren*, W.X. Wang, Y. Takao, Z.X. Chen, *Kyushu University, Japan*

04 - Experimental techniques

[P04.01] **Measuring the elasticity map & 3D-profile of human body with the Indentation test system**
M.C. Shin*, K.I. Lee, J.W. Byun, C.N. Chu, *Seoul National University, Korea*

[P04.02] **Elastic properties of soft nano-objects evaluated from AFM images**
S.R.T Radji-Taleb*[1], A.A Alem[2], S.D.C Demoustier-Champagne[3], A.M.J Jonas[3], S.C Cuenot[1], *[1]Universite de Nantes, French Southern Territories, [2]Universite de Nancy, France, [3]Universite catholique de Louvain, Belgium*

[P04.03] **Mechanical characterization of resin cements by nanoindentation after accelerated aging and comparison between experimental and computational methods**
P. Soares*[1], A.P.G.O. Franco[1], R.F. Mazur[1], M.B. Hecke[2], L. Carvalho[3], *[1]Pontifícia Universidade Católica do Paraná, Brazil, [2]Universidade Federal do Paraná, Brazil, [3]CESPU, Portugal*

[P04.04] **Diamond-like carbon (DLC) and novel nanocomposite DLC-polymer-hybrid (DLC-p-h) coatings and their properties**
A. Soininen, *ORTON Research Institute, Finland*

05 - Failure criteria

[P05.01] **Functionally graded metal-porcelain dental restoration obtained by powder metallurgy**
B. Henriques*, D. Soares, F. Silva, *University of Minho, Portugal*

06 - Fracture, fatigue and creep

[P06.01] **A two-dimensional model for carbon nanotube reinforced bone cement fracture analysis: A study on the effects of carbon nanotubes on crack propagation**
A. Raeisi Najafi*[1], A.R. Arshi[2], M.H. Moeinzadeh[1], K. PourAkbar Saffar[3], *[1]University of Illinois, USA, [2]Amirkabir University of Technology, Iran [3]University of Calgary, Canada*

[P06.02] **Modification of composite filling with short deformable fibers**
J. Jancar*, *Brno University of Technology, Czech Republic*

07 - Hard tissues (bone, tooth materials)

[P07.01] **Exploring influence of coupled fluid layer on propagation of lamb waves in bone phantoms: Modeling and experiment**
J. Chen*, Z. Su, L. Cheng, *The Hong Kong Polytechnic University, China*

[P07.02] **Nano-structure and mechanical properties of the human dentin-enamel junction**
Y.L. Chan*, A.H.W. Ngan, N.M. King, *The University of Hong Kong, Hong Kong*

[P07.03] **Effect of different glass powders on the improvement of glass-ionomer cement with hydroxyapatite**
Y. Shinonaga*, K. Arita, A. Yamamoto, M. Lucas, *The University of Tokushima Graduate School, Japan*

[P07.04] **Development of silk fibroin from bombyx mori with high calcium binding ability and application to regenerated materials for bone**
Y. Nakazawa*, Y. Tanioka, T. Asakura, *Tokyo University of Agriculture and Technology, Japan*

[P07.05] **Phosphate-rich coating layer with high mechanical properties on titanium surface**
A. Valanezhad*[1], K. Tsuru[1], M. Michito[1], S. Matsuya[2], K. Ishikawa[1], *[1]Kyushu University, Japan, [2]Fukuoka Dental College, Japan*

[P07.06] **On the development of callus during the healing in vivo**
S. Besdo*[1], N. von der Höh[2], D. Besdo[1], F. Thorey[3], H. Windhagen[3], A. Meyer-Lindenberg[2], *[1]Leibniz University of Hannover, Germany, [2]University of Veterinary Medicine Hannover, Germany, [3]Hannover Medical School, Germany*

[P07.07] **Nano- and microscopic investigations on demineralized and deproteinated bone**
A.B. Castro-Ceseña[1], P.-Y. Chen*[2], D.A. Toroian[2], P.A. Price[2], G.A. Hirata[1], J. McKittrick[1], *[1]Centro de Investigación Científica y de Educación Superior de Ensenada, Mexico, [2]University of California, San Diego, USA, [3]Universidad Nacional Autónoma de México, Mexico*

[P07.08] **Effect of different fluoride therapies on the microhardness surface of human enamel exposed to bleaching agents**
J. Martin*, V. Torno, P. Soares, R. Mazur, *Pontifical Catholic University of Paraná, Brazil*

08 - Mechanics of cells, molecules and nanomaterials

[P08.01] **Detection of forces generated by chemomechanical protein aggregates using a polymer BioMEMS sensor**
S. Schwan*[1], M. Menzel[1], U. Spohn[1], D. Hansford[2], N. Ferrell[3], A. Heilmann[1], *[1]Fraunhofer Institute for Mechanics of Materials Halle, Germany, [2]Ohio State University, USA, [3]Cleveland Clinic, USA*

[P08.02] **Modelling of regulated embryo morphogenesis**
R. Allena*[1], J. Munoz[2], D. Aubry[1], *[1]Ecole Centrale Paris, France, [2]Universitat Polit. de Catalunya, Spain*

[P08.03] **Functional enhancement of myosin Mg2+-ATPase activity and muscle thin filament sliding speed by troponin**
V.A. LaBarbera*[1], N.L. Meyer[1], B.J Gavino[1], A.K. Takeda[1], B. Schoffstall[2], P.B. Chase[1], *[1]Florida State University, USA, [2]Barry University, USA*

[P08.04] **Multi-scale studies of fibril forming collagen**
G. Matthews*[1], H. Harper[1], E. Cropper[1], T. Koob[2], S. Pandit[1], *[1]University of South Florida, USA, [2]MiMedx, Inc., USA*

[P08.05] **Interfacial photopolymerization of styrenated carboxymethylcellulose solution for preparation of cell-enclosing microcapsules**
C. Mu*, T. Matsuyama, S. Sakai, H. Ijima, K. Kawakami, *Kyushu University, Japan*

09 - Mechanics of living tissue (including repair and adaptation)

[P09.01] **Relationship between body posture, topography and mechanical tension of human skin**
G. Boyer*[1,2], J. Molimard[1,3], H. Zahouani[1], M. Pericoi[1], *[1]LTDS UMR5513, France, [2]PERITESCO, France, [3]Centre SMS, Ecole des Mines de Saint-Etienne, France*

[P09.02] **Influence of interstitial bone microcracks on strain-induced fluid flows**
V.-H. Nguyen*, T. Lemaire, S. Naili, *University of Paris 12, France*

[P09.03] **Periodontal reactions in rat molars submitted to a continuous orthodontic low-force: Ultrastructural, histochemical, and immunocytochemical analyses**
N. D'Andrea-Mateus*, L. Bonafe-Oliveira, V. Bradaschia-Correa, V.E. Arana-Chavez, *University of São Paulo, Brazil*

10 - Molecular mechanics

[P10.01] **Mimic the mechanical properties of bones: From a molecular approach based on sacrificial bonds study**
S.R.T Radji-Taleb*[1], A.S.D Duwez[2], S.C Cuenot[1], *[1]Universite de Nantes, French Southern Territories, [2]Universite de Liege, Belgium*

11 - Soft tissues

[P11.01] **Computational fluid dynamics, fluid-structure interaction and solid mechanics in anatomically realistic cerebral aneurysm models: Sensibility analysis with respect geometrical and mechanical parameters**
A. Valencia*[1], H. Figueroa[1], M. Rojo[1], R. Rivera[2], E. Bravo[2], *[1]Universidad de Chile, Chile, [2]Instituto de Neurocirugia Asenjo, Chile*

[P11.02] **Using a novel stretching device to study the effects of mechanical strain on tenocytes in vitro**
L.S. Way*, C. Gray, J.M. Rigelsford, G. Reilly, A.M. Scutt, *Sheffield University, UK*

[P11.03] **Compliance of the carotid sinus in response to head movements and its relationship to cervical artery dissection**
F.M. Callaghan*[1], M. Soellinger[2,3], R.W. Baumgartner[4], D. Poulikakos[1], P. Boesiger[2], V. Kurtcuoglu[1], *[1]ETH Zurich, Switzerland, [2]University Zurich, Switzerland, [3]Medical University Graz, Austria, [4]University Hospital Zurich, Switzerland*

[P11.04] **Numerical analysis of the biomechanical effect of menisectomy on the knee joint**
J.Y. Bae*, J.H. Park, S.J. Park, E.K. Song, I. Jeon, *Chonnam National University, Korea*

[P11.05] **Pattern of myoelectrical activity of erector spinae during posterior pelvic shift**
A. Gupta*[1], A. Gupta[2], *[1]Uttaranchal Forest Hospital Trust Medical College.Haldwani, India, [2]Maulana Azad Medical College, India*

12 - Stress/strain/time relationships

[P12.01] **Reliability of speckle tracking ultrasound for assessment of myocardial strain**
A. Stigo*[1], K. Sivesgaard[1], P. Johansen[1,2], M. Jensen[1,2], H. Nygaard[1,2], E. Sloth[1], *[1]Aarhus University Hospital, Skejby, Denmark, [2]Engineering College of Aarhus, Denmark*

[P12.02] **Effect of strain rate and moisture content on the mechanical behaviour of human compact bone tissue**
I. Knets*, V. Vitins, M. Dobelis, V. Filipenkovs, *Riga Technical University, Latvia*

[P12.03] **Microstructural modelling of reorientation of collagenous tissues under compressive loading**
Ö. Can*[1], K.U. Bletzinger[1], R. Lackner[2], *[1]Technische Universität München, Germany, [2]University of Innsbruck, Austria*

13 - Structural properties of natural materials

[P13.01] **Investigation of the applied bending in behavior of the controlled fracture laser cutting**
N. Rasti*, *University of Waterloo, Canada*

[P13.02] **Morphology of human dentin under Sjögren's syndrome**
S. Grigoriev[1], D. Zaitsev*[2], P. Panfilov[2], *[1]Ural State Medical Academy, Russia, [2]Ural State University, Russia*

[P13.03] **Characterization of the dynamic onset of fibric damage in type I collagen fascicles**
E. Herger, P.A. Sundaram*, *University of Puerto Rico Mayaguez, Puerto Rico*

[P13.04] **Investigation of bovine pericardium's properties by means of mechanical and polarimetric analysis**
G. D'Avenio[1], C. Del Gaudio[2], L. Gneffe[1], A. Bianco[2], C. Daniele[1], M. Grigioni*[1], *[1]Istituto Superiore di Sanità, Rome, Italy, [2]University of Rome "Tor Vergata", Rome, Italy*

14 - Theoretical models

[P14.01] **A mathematicam model for stability analysis of a pre-cracked tibia column.**
P.N. Jiki*, D.D. Songden, *University of agriculture, Nigeria*

[P14.02] **Steiner tree in cell wall**
G. Li*[1], Y. Yin[2], Y. Li[1], Z. Zhong[1], *[1]Tongji University, China, [2]Tsinghua University, China*

[P14.03] **A model for statistical analysis of a damaged spinal column**
P.N. Jiki, *University of Agriculture, Nigeria*

[P14.04] **Parametric studies of cell adhesion mediated by the receptor-ligand interaction**
J. Li, M. Chiang*, *National Institute of Standards and Technology, USA*

[P14.05] **Evaluation of the permeability of cancellous bone and cellular biomaterials using CFD models**
E. Bianchi, T. Villa*, D. Gastaldi, G. Pennati, *Politecnico di Milano, Italy*

[P14.06] **On the evolution of cancellous bone according to Wolff's observations**
D. Besdo*, S. Besdo, *Leibniz University of Hannover, Germany*

15 - Tissue engineering materials

[P15.01] **Mechanical response of collagen scaffolds in vitro**
J.M.R Tilley*, J.T. Czernuszka, *University of Oxford, UK*

[P15.02] **Production of new silk-like recombinant proteins with high cell adhesive activity based on structural analyses of silk fibroin from wild silkworm, anaphe**
C. Tanaka*[1,2], A. Asano[1], T. Kurotsu[1], T. Asakura[2], *[1]National Defense Academy, Japan, [2]Tokyo University of Agriculture and Technology, Japan*

[P15.03] **Fabrication of 3D scaffolds using microstereolithography with HA-AEMA and TMC-TMP**
T. Kang*, J.K. Park, J. Yeom, H.-W. Kang, S.K. Hahn, D.-W. Cho, *POSTECH, Korea*

[P15.04] **Tissue engineering with mechanically stabilized nanoporous aluminum oxide**
A. Höß, A. Stäudte, A. Thormann, A. Heilmann*, *Fraunhofer Institute for Mechanics of Materials, Germany*

[P15.05] **In vitro testing of novel electrospun scaffold for bioresorbable heart valve prosthesis**
C. Del Gaudio[1], A. Bianco[1], M. Grigioni*[2], *[1]University Tor Vergata, Italy, [2]Istituto Superiore di Sanità, Italy*

[P15.06] **Electrospun grafts for tissue engineered blood vessels**
E. Ercolani[1], C. Del Gaudio[1], A. Bianco[1], F. Nanni[1], M. Grigioni*[2], *[1]University Tor Vergata, Italy, [2]Istituto Superiore di Sanità, Italy*

[P15.07] **Cross-linked collagen films modified with PEG-PLGA-ITA copolymers**
L. Vojtova[1], J. Jancar*[1], A. Necas[2], *[1]Brno University of Technology, Czech Republic, [2]Veterinary and Phyrmauceutical University, Czech Republic*

[P15.08] **Development of 3 dimensional hydroxyapatite structures for tissue engineering**
Y.-J. Seol*[1], H.-W. Kang[1], S.-W. Kim[2], J.W. Rhie[2], W.S. Yun[3], D.-W. Cho[1], *[1]POSTECH, Korea, [2]The Catholic University. of Korea, Korea, [3] Korea Polytechnic University, Korea*

[P15.09] **The effects of dual stimulation to MC3T3-E1 cells**
K.S. Kang*[1], S-J. Lee[2], S.-H. Kim[3], Y.-J. Jun[4], Y.H. Jeong[5], D-W. Cho[1], *[1]POSTECH, Korea, [2]Gyeongbuk Hybrid Technology Institute, Korea, [3]Biomaterials Research Center, KIST, Korea, [4]The Catholic University of Korea, Korea, [5]Korea Polytechnic University, Korea*

16 - Wear, friction and lubrication

[P16.01] **Tribological performance comparison of plasma electrolytic oxidation coatings on γ-TiAl and TI6AI4V**
L. Lara*, P.A. Sundaram, N. Difoot-Carlo, *University of Puerto Rico Mayaguez Campus, USA*

[P16.02] **Measuring skin deformation in-vivo using a motion capture system**
J. Mahmud, S.L. Evans, C.A. Holt*, *Cardiff University, UK*