

# Monday, 21 September 2009

07:30 – 13:00	Registration Open ( <b>Makai Ballroom</b> )		
08:30 – 08:45	Congress Opening ( <b>Mauka Ballroom</b> )		
08:45 – 9:30	Keynote Presentation: <b>An Overview of Sports Ball Aerodynamics</b> By <b>Rabindra Mehta, NASA, USA</b>		
09:30 – 10:15	Keynote Presentation: <b>How Research Leads to Innovative Athletic Products</b> By <b>Mario A. Lafortune, NIKE Sports Research Laboratory, USA</b>		
10:15 – 10:40	Morning Tea Break ( <b>Makai Ballroom</b> )		
10:40 – 11:25	Keynote Presentation: <b>Sensitivity of Golf Ball Trajectories to Initial and External Conditions</b> By <b>Alexander Smits, Princeton University, USA</b>		
	<b>Mauka Ballroom</b>	<b>Maloko Ballroom</b>	<b>Ekahi Meeting Room</b>
Morning Session	<b>Impact Sport (Tennis/Badminton/Rope)</b>  <b>Chair: Akira Shionoya</b> <b>Co-Chair: Harutoshi Yukawa</b>	<b>Winter Sport (Ski &amp; Snowboard)</b>  <b>Chair: Leonid Kuzmin</b> <b>Co-Chair: Tetsuya Yoshida</b>	<b>General (Exercise)</b>  <b>Chair: Hung Ta Chiu</b> <b>Co-Chair: Stephan Odenwald</b>
11:30 – 11:45	<b>P39:</b> Measuring Kinematics of a Badminton Racket Using Strain Gages <u>M. Kwan</u> , C.-L. Cheng, W.-T. Tang & J. Rasmussen	<b>P15:</b> Comparison of Ski Running Surfaces Machined by Various Stone Grinding Equipments L. Dahlen, <u>L. Kuzmin</u> , R. Ebrahimzadeh & H. Wiklund	<b>P27:</b> Development of Real-Time Sports Activity Classification and Monitoring System J.S. Choi, D. W. Kang, K. R. Mun, J. W. Lee, B. S. Lee, S. C. Chung & <u>G. R. Tack</u>
11:45 – 12:00	<b>P147:</b> Aerodynamics of Badminton Shuttlecock <u>F. Alam</u> , C. Theppadungporn, H. Chowdhury & A. Subic	<b>P35:</b> Critical Factors Influencing Loss of Time after Shooting - A Case Study Performed during the 2008 IBU Biathlon World Championships <u>M. Bäckström</u> , L. Kuzmin, L-E. Rännar, H. Wiklund	<b>P36:</b> Work Economy of Amateur and Elite Cross-Country Skiers during Treadmill Roller Skiing <u>M. Ainegren</u> , P. Carlsson, M. Tinnsten And M. Laaksonen
12:00 – 12:15	<b>P63:</b> Dynamic Impact Characteristics of Tennis Racket and Ball using Solid String Model Y. J. Zhang, Y. S. Kim	<b>P37:</b> Numeric Simulation of Cross Country Skiing <u>P. Carlsson</u> , M. Tinnsten, & M. Ainegren	<b>P83:</b> Changes of Joint Torque during Tai Chi Gait at Different Heights of Center of Body Mass <u>K. Inoue</u> , H. Kobayashi, A. Uematsu & S. Suzuki

<b>12:15 – 12:30</b>	<b>P92:</b> Kansei Evaluation of Tennis Racket by Concurrent Thurstone’s Paired Comparison Analysis and Electromyography (EMG) Analysis <u>A. Shionoya</u> , K. Hata & T. Saijo	<b>P60:</b> Finite Element Analysis of Snowboard Structural Properties for Different Riding Conditions <u>P. Clifton</u> , A. Subic, Y. Sato & S. Feih	<b>P96:</b> Effects of Shoe Midsole Longitudinal Bending Stiffness on Running Economy in Highly-Trained Triathletes <u>B. J. Williams</u> & M. P. Caine
<b>12:30 – 12:45</b>	<b>P145:</b> Discrimination of Stroked Tennis Ball in a Stereoscopic Immersive Virtual Environment <u>H. Ida</u> , T. Inoue, K. Fukuhara, M. Takahashi & M. Ishii	<b>P61:</b> Hypothesis Testing and Description of Temperature Change Effects on Snowboard Structural Properties <u>P. Clifton</u> , A. Subic, & Y. Sato	<b>P106:</b> Development of Walking Exercise Apparatus for the Aged <u>K. R. Chung</u> , C. Choi, S. Y. Kim, K. S. Hong, & J. H. Hyeong
<b>12:45 – 13:00</b>	<b>P14:</b> Influence of Moisture on Functional Properties of Climbing Ropes <u>A. Nikonov</u> , B. Zupančič, U. Florjančič, & I. Emri	<b>P62:</b> A Basic Study on Design of a Ski Boot Based on Features of a Frame of a Skier S. Suzuki & <u>S. Hayashi</u>	<b>P57:</b> Replicating Human Running: Implementation of a 6 Degree of Freedom Industrial Robot in the Sports Domain J. Ronkainen, M. Roberts, R. El-Kati, <u>Kathryn Severn</u> , S. Forrester & P. Fleming
<b>13:00 – 14:00</b>	<b>Lunch (Makai Ballroom)</b>		
	<b>Mauka Ballroom</b>	<b>Maloko Ballroom</b>	<b>Ekahi Meeting Room</b>
<b>Afternoon Session</b>	<b>Ball Impact Sport</b>  <b>Chair:</b> <b>Lloyd Smith</b> <b>Co-Chair:</b> <b>Keiichi Shirase</b>	<b>Winter Sport (Ski &amp; Snowboard)</b>  <b>Chair:</b> <b>Soichiro Suzuki</b> <b>Co-Chair:</b> <b>Dale DeVoe</b>	<b>General (Exercise/Evaluation/Prevention)</b>  <b>Chair:</b> <b>Gye Rae Tack</b> <b>Co-Chair:</b> <b>Nakashima Motomu</b>
<b>14:00 – 14:15</b>	<b>P2:</b> Performance Benefits of Handle Flex in Baseball Bats K. B. Blair, <u>G. Williams</u> & N. Santiago	<b>P82:</b> An Examination of the Wettability of the Running Surface of Skis as a Means of Minimizing Snow Friction <u>D. M. Dressler</u> & S. I. Green	<b>P116:</b> Estimation of the Impact Energy for Walking, Jogging, and Running with an Impact Testing Method <u>J. L. Liang</u> & H. T. Chiu
<b>14:15 – 14:30</b>	<b>P46:</b> Effect of Ball Properties on the Ball-Bat Coefficient of Restitution A. M. Nathan & <u>L. V. Smith</u>	<b>P91:</b> Parallel Measurement of Vibration and EMG (Electromyography) in Summer Skiing: Fundamental Study on the Development of the System for Estimating Exhaustion <u>A. Shionoya</u> , K. Hata & T. Saijo	<b>P115:</b> Plantar Pressure for Flat-Footed Elderly Females during Walking <u>Y. T. Huang</u>
<b>14:30 – 14:45</b>	<b>P56:</b> A Proposed Model for Baseball Dynamic Impact <u>W. B. Giannetti</u> & J. A. Sherwood	<b>P99:</b> Modeling of Alpine Skis Considering Individual Constituent Material Properties <u>K. Hosokawa</u> , S. Kawai & T. Sakata	<b>P86:</b> Relationship between Career and Low Tackle Skill in High School Rugby Football Players <u>Sakata M</u> , Yoshida Y, Kume M, Kijima K, T. Tanaka, R. Marui, T. Kiyotsuru & T. Yoshida
<b>14:45 – 15:00</b>	<b>P118:</b> The Effect of Experimental Error on Bat Performance Measurements <u>L. V. Smith</u>	<b>P107:</b> Full Customisation, Parametric Design and Quick Performance Estimation of Snowboard Using Advanced Virtual Reality	<b>P100:</b> A Player-Perception Study of the Comfort of Soccer Boots <u>J. D. Clarke</u> , M. J. Carré, M. Nunns & S.

		Platform <u>K. W. Lee</u> , P. M. Trivailo, A. Subic	Dixon
<b>15:00 – 15:15</b>	<b>P113:</b> Investigation of Arm Throwing Motion with Inertial Sensors and Motion Capture <u>A. Busch</u> & D. James	<b>P108:</b> Characterisation and Optimisation of Snowboard Feel <u>K. W. Lee</u> , <u>P. Clifton</u> , P.M. Trivailo & A. Subic	<b>P11:</b> Nickel Release from Sports Equipment <u>Y. H. Huang</u> , R. W. Smith & C. H. Huang
<b>15:15 – 15:30</b>	<b>P51:</b> An Experimental Study of the Impact of a Sepak Takraw Ball on a Flat Surface <u>N. Ahmad</u> , Z. Taha, S. Ujihashi, And K. Tanaka		<b>P109:</b> Biomechanical Analysis of the Forward Lunge in Badminton Players <u>Chi-Kang Wang</u> , Kuangyou B. Cheng, & Kuo-Cheng Tu
<b>15:30 – 16:00</b>	<b>Afternoon Tea (Makai Ballroom)</b>		
<b>Late Afternoon Session</b>	<b>Golf</b>  <b>Chair: Kim Blair</b> <b>Co-Chair: Hiroshi Matsuhisa</b>	<b>Winter Sport (bobsled/boots/skating)</b>  <b>Chair: Hiroki Okubo</b> <b>Co-Chair: Mikael Backstrom</b>	<b>General (Design)</b>  <b>Chair: Anton Sabo</b> <b>Co-Chair: Kazuya Seo</b>
<b>16:00 – 16:15</b>	<b>P1:</b> Golf Driver/Ball Impact Acoustic Measurement System <u>B. T. Holschuh</u> , T. L. Gray, K. B. Blair	<b>P7:</b> Automation of the Aerodynamic Shape Optimization of a Bobsleigh using Computational Tools <u>A. Winkler</u> & A. Pernpeintner	<b>P5:</b> Development of a Flexible Shot-Put Chair-Back for an Elite Paralympics Athlete C. Oertel, S. Litzenberger, M. Eckelt, P. Kafka & A. Sabo
<b>16:15 – 16:30</b>	<b>P90:</b> Relationship between Structure and Mechanical Properties of Braiding Golf Shafts and Kansei <u>M. Ohara</u> , A. Ohtani, A. Nakai, H. Hamada, M. Sakata, T. Tanaka, M. Kume, Y. Yoshida, & T. Yoshida	<b>P8:</b> Potentials and Challenges for the Aerodynamic Shape Development Process in Sports Engineering A. Pernpeintner & A. Winkler	<b>P156:</b> The Effect of a Recommended Training Program on Some Kinematical Variables and the Numerical Level For Junior Discus Throwers in Egypt and Libya <u>M. A. Salem</u> And E. A. M. Saad
<b>16:30 – 16:45</b>	<b>P68:</b> A Study of Comfortable Hitting Sound of Golf Club <u>H. Matsuhisa</u> , H. Morimoto, H. Utsuno, & K. Yamada	<b>P34:</b> Taylor Made Titanium Insoles in Alpine Ski Boots M. Bäckström, L. Dahlén, R. Ebrahimzadeh, & <u>L-E. Rännar</u>	<b>P24:</b> Aerodynamic Characteristics of New Official Volleyball Adopted by Beijing Olympic Katsumi Aoki, Koji Muto, Shuzo Matsuno & Takashi Fujikura
<b>16:45 – 17:00</b>	<b>P72:</b> The Static and Dynamic Behaviour of Carbon Fibre Composites used in Golf Club Shafts <u>C. Slater</u> , N. Betzler, S. R. Otto, & M. Strangwood	<b>P119:</b> Assessing Klap Kinematics and Cardiorespiratory Responses in Speed Skating with On-Board Biotelemetry <u>S. Maw</u> , E.K. Tomaras, T. McClements, A. Yuen & B.R. Macintosh	<b>P104:</b> “The 24h Of Innovation®”: An Event to Stimulate New Product Concepts in The Sports Technology <u>J. Legardeur</u> , D. Choulier, & E. Savoie

<b>17:00 – 17:15</b>	<b>P153:</b> Construction of Finite Element Models for Impact Between Golf Ball and Club <u>K. Tanaka</u> , H. Oodaira, Y. Teranishi & S. Ujihashi	<b>P43:</b> Experimental Analysis on Parameters affecting Drag Force on Athletes <u>L. Oggiano</u> & L. Sætran	<b>P47:</b> Efficient Sport Product Development for Small Markets <u>B. Schroerer</u> , & U. Lindemann
<b>17:15 – 17:30</b>	<b>P25:</b> Effects of Dimple Structure on Flying Characteristics of a Golf Ball Koji Muto, Hiroo Okanaga, Yoh Nishizawa & Katsumi Aoki	<b>P89:</b> Applicability of Braided Structure for Ice Hockey Sticks <u>S. Nasu</u> , A. Ohtani, A. Nakai, H. Hamada, M. Kume, Y. Yoshida & T. Yoshida	<b>P19:</b> Towards Fuel Optimisation on Golf Courses: Measurement, Analysis and Innovation <u>M. C. J. Caple</u> , K. Blombäck & M. J. D. Dufour

<b>19:30 – 21:30</b>	<b>Banquet (Pool Deck Room), Hyatt Regency</b>
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## Tuesday, 22 September 2009

<b>Plenary Session</b>	<b>Mauka Ballroom</b>		
<b>08:45 – 09:30</b>	<b>Keynote Presentation: Engineering for speed - drag reduction in swimsuit design</b> By Jason Rance, VP Marketing, Speedo International		
<b>09:30 - 10:15</b>	<b>Keynote Presentation: Measuring and Analysing the Locomotion of Elite Athletes: A Reliable New Magnetic and Inertial Sensor</b> By Troy Flanagan, US Ski & Snowboard Association		
<b>10:15 – 10:40</b>	<b>Morning Tea Break (Makai Ballroom)</b>		
<b>10:40 – 11:25</b>	<b>Keynote Presentation: Showing What's Hard to See in Sports</b> By Marvin White, Sportvision, USA		
	<b>Mauka Ballroom</b>	<b>Maloko Ballroom</b>	<b>Ekahi Meeting Room</b>
<b>Morning Session</b>	<b>Ball Sport (Cricket/Basket ball/Hockey)</b>	<b>Sports Shoes</b>	<b>General (Garments)</b>
	<b>Chair: Alexander Smits</b> <b>Co-Chair: Roger La Brooy</b>	<b>Chair: Franz Konstantin Fuss</b> <b>Co-Chair: Mats Timnsten</b>	<b>Chair: David Mainwaring</b> <b>Co-Chair: Katsumasa Tanaka</b>
<b>11:30 – 11:45</b>	<b>P146:</b> New Methods of Initiating Reverse Swing on a Cricket Ball <u>R. L. Brooy</u> , F. Alam & J. Watmuff	<b>P12:</b> Comparison of Toeing Out of the Foot between Overground and Treadmill Running P. Tekautz, T. Rathgeber, S. Litzenberger & A. Sabo	<b>P9:</b> Do Shirt Clothing Fabrics Treated with Phase Change Material (PCM) affect Thermoregulatory Responses and Subjective Ratings to Walking and Running D. Devoe, <u>R. G. Israel</u> , K. Jacques, & L. Holowatz
<b>11:45 – 12:00</b>	<b>P155:</b> An Examination of Conventional and Reverse Swing of a Cricket Ball <u>R. L. Brooy</u>	<b>P13:</b> Cryogenic Manufacture of a Customised Football Boot Insole <u>P. Crabtree</u> , V. Dhokia, M. P. Ansell & S. T. Newman	<b>P95:</b> Aerodynamic and Comfort Properties of Single Jersey Textiles for High Speed Sports <u>L. Oggiano</u> , I. Konopov, O. Troynikov, F. Alam, A. Subic & L. SÆTRAN
<b>12:00 – 12:15</b>	<b>P48:</b> Conditions for Basketball Stick between the Rim and Backboard <u>H. Okubo</u> & M. Hubbard	<b>P16:</b> Rapid Craft CNC Machining of Personalized Orthotic Insoles for Medical and Sporting Applications <u>V.G. Dhokia</u> , P. Crabtree, S.T. Newman, M.P. Ansell & R.D. Allen	<b>P154:</b> Preliminary Development of an Interactive Sleeve for Improving Throwing Technique R.J.N. Helmer, D. Farrow, M.A. Mestrovic & <u>I. Blanchonette</u>
<b>12:15 – 12:30</b>	<b>P75:</b> The Relationship between Material Properties and Whole Ball Behaviour in Solid Hockey Balls <u>D. Ranga</u> & M. Strangwood	<b>P134:</b> Quality of automatically determined foot dimensions <u>S. Odenwald</u>	<b>P131:</b> Effects of Textile and Garment Design on Aerodynamic Characteristics Applied to Cycling Apparel <u>H. Chowdhury</u> , J. Beneyto-Ferre, M. Tate, F. Alam, D. Mainwaring, D. Forster & A. Subic
<b>12:30 – 12:45</b>	<b>P136:</b> Laboratory Measurements of Ice Hockey Stick Performance <u>L. V. Smith</u> & R. L. Bigford	<b>P135:</b> Mechanical properties of army boots <u>S. Odenwald</u>	<b>P81:</b> The Acute Response to Garment-Based Thoracic Elastic Loading on Ventilation <u>A. R. Gray</u> , P. W. Smith and M. P. Caine

<b>12:45 – 13:00</b>	<b>P65:</b> Design and Development of Impact Type Ball Ejection Units S. Ito, K. Seo, S. Koike & <u>T. Asai</u>	<b>P137:</b> Function Or Fashion? Design of Sports Shoes and Directional Energy Return: Introducing a New Concept of Directional Energy Transfer <u>F. K. Fuss</u>	
<b>13:00 – 14:00</b>	<b>Lunch (Makai Ballroom)</b>		
	<b>Mauka Ballroom</b>	<b>Maloko Ballroom</b>	<b>Ekahi Meeting Room</b>
<b>Afternoon Session</b>	<b>Exercise/Injury</b> <b>Chair:</b> Daniel James <b>Co-Chair:</b> Katsumi Aoki	<b>Ball Aerodynamics</b> <b>Chair:</b> Takeshi Asai <b>Co-Chair:</b> John Watmuff	<b>Sport Materials/Motion Analysis</b> <b>Chair:</b> Kenji Hosokawa <b>Co-Chair:</b> Sadayuki Ujihashi
<b>14:00 – 14:15</b>	<b>P132:</b> Optimization of Arm Stroke in Freestyle Swimming by Simulation M. Nakashima & Y. Sato	<b>P29:</b> Wind Tunnel Experiment of Knuckle Effect of a Soccer Ball Y. Iwai, M. Murakami & K. Seo	<b>P138:</b> Collapse Stress, Strain, Rate and Timing of Closed Cell Foams: Revealing a Conceptual Misunderstanding of Foam Mechanics F. K. Fuss
<b>14:15 – 14:30</b>	<b>P149:</b> Roadmapping Performance Enhancement Measures and Technology in Swimming A. Stamm, D. Thiel, B. Burkett & <u>D. A. James</u>	<b>P31:</b> Soccer Ball Flight Dynamics Experiment Using Kicking Machine S. Suda, T. Asai, M. Kondoh, M. Murakami & S. Ito	<b>P152:</b> Collapse Behaviour of Foam Shock Pads F. K. Fuss & T. Allgeuer
<b>14:30 – 14:45</b>	<b>P22:</b> Lower Limbs Muscular Power in Vertical Jump Estimated by Human Musculo-Skeletal Model Considering Bi-Articular Muscle Function I. Nishida, M. Maeda & <u>K. Shirase</u>	<b>P66:</b> Vortex Visualisation of a Low Spinning Soccer Ball T. Asai	<b>P80:</b> Parameter Identification of Nonlinear Viscoelastic Model for Sports Surfaces by Using a Multi-Intensity Multi-Area Impact Test H. Yukawa, T. Murai, S. Kawamura & K. Kobayashi
<b>14:45 -15:00</b>	<b>P26:</b> Head Injury Analysis in Case of Fall from Playground Equipment using Child Fall Simulator <u>Y. Miyazaki</u> , Y. Murai, Y. Nishida, T. Yamanaka, M. Mochimaru & M. Kouchi	<b>P126:</b> Aerodynamics of Australian Rules Foot Ball-An Experimental and Computational Study <u>F. Alam</u> , J. Naser & A. Subic	<b>P85:</b> Motion Analysis on the Start of Sumo Match in Japanese College Wrestlers T. Nakabayashi, M. Shirato, M. Kume, Y. Hattori & T. Yoshida
<b>15:00 – 15:15</b>	<b>P98:</b> Prediction of Head Acceleration and Neck Loading in Vertical Impact <u>M. Ziejewski</u> & E. M. Yliniem	<b>P38:</b> Aerodynamic Characteristics of a Sepak Takraw Ball on its Face Orientation <u>K. Seo</u> & M. Shibata	<b>P88:</b> Effects of Kyoto Bow Structure on Motion of the Archer <u>S. Nasu</u> , Y. Hidekuma, K. Shibata, A. Nakai, H. Hamada, M. Kume, Y. Yoshida & T. Yoshida
<b>15:15 – 15:30</b>	<b>P10:</b> High Speed Sensor and Testing System for Baseball Chest Protectors K. B. Blair, J. M. Turner, <u>M. Vasquez</u>	<b>P110:</b> Aerodynamics of a Golf Ball with Grooves <u>J. Kim</u> , K. Son, J. Choi & H. Choi	<b>P114:</b> Using the Bch Angle to Evaluate the Snatch Technique of a Young Female Weightlifter

			H. T. Chiu & J. L. Liang
<b>15:30 – 16:00</b>	<b>Afternoon Tea (Makai Ballroom)</b>		
	<b>Mauka Ballroom</b>	<b>Maloko Ballroom</b>	<b>Ekahi Meeting Room</b>
<b>Late Afternoon Session</b>	<b>General (Surface)</b> <b>Chair: Alexander Walker</b> <b>Co-Chair: Hakan Wiklund</b>	<b>Summer Sport (Cycling)</b> <b>Chair: Martin Strangwood</b> <b>Co-Chair: Rob Redfield</b>	<b>General (Sensors)</b> <b>Chair: Rabindra Mehta</b> <b>Co-Chair: Masahide Murakami</b>
<b>16:00 – 16:15</b>	<b>P17:</b> Indirect Measurement of Hockey Ball Roll Behaviour on Different Artificial Surfaces <u>R. Verhelst</u> , P. Verleysen & J. Degrieck	<b>P21:</b> Structural Stiffness and Brake Vibration in Mountain Biking <u>R. C. Redfield</u> & C. Sutela	<b>P121:</b> Automated Biomechanical Biofeedback of the Archery Shot Cycle. <u>M. Davis</u> , W. Spratford & C. Mackintosh
<b>16:15 – 16:30</b>	<b>P18:</b> Force Analysis during 180° Turning on Two Types of Artificial Turf <u>R. Verhelst</u> , P. Malcolm, G. Debuyck, P. Verleysen, J. Degrieck & D. De Clercq	<b>P42:</b> Mountain Biking Longitudinal Dynamics: Starting, Stopping, & Suspension Interaction <u>R. C. Redfield</u>	<b>P122:</b> Force Measuring System for Canoe and Kayak Paddles. <u>M. Davis</u> , A. Hunter & M. James
<b>16:30 – 16:45</b>	<b>P79:</b> Two-Dimensional Cushioning Characteristics of Sport Surfaces <u>H. Yukawa</u> , S. Kawamura & K. Kobayashi	<b>P76:</b> The Effects of Polymer Foam Filling on Bending / Shear Stiffness and Damping Behaviour of High Strength Metallic Tubes <u>M. Strangwood</u>	<b>P130:</b> Myron: Smart Footballs for Automated Coaching <u>A. P. Goldhammer</u> , M. T. Chuang, E. Mullinix, S. Elia, T. Yang, B. Koopman, J. N. Beaver, X. Fu, D. Dancescu, A. Jhunjhunwala, A. Buchan, A. J. Harris, M. Soto, R. Gandhi, P. Narasimhan
<b>16:45 – 17:00</b>	<b>P20:</b> Synthetic Turf Surfaces: Player-Surface Interactions <u>K. A. Severn</u> , P. R. Fleming & N. Dixon	<b>P128:</b> The Effects of Aerodynamic Design on Lightweight Human Powered Vehicles G. Zimmer & <u>F. Alam</u>	<b>P133:</b> Design and Manufacturing a Computerized Multifunction Back-Leg-Chest Dynamometer <u>A. Meamarbashi</u> & L.A. Bolbol
<b>17:00 – 17:15</b>	<b>P87:</b> Evaluation of the Amenity Concerning the Flooring Structures <u>A. Goto</u>	<b>P127:</b> A Comparative Study of Aerodynamic Forces of Time Trial Bicycle Helmets F. Alam, A. Subic & <u>J. Watmuff</u>	<b>P148:</b> Using Inertial Sensors to Examine the Soccer Throw-In J. G. Neville, <u>D. A. James</u> , D. V. Thiel, & D. D. Rowlands
<b>17:15 – 17:30</b>	<b>P105:</b> Horizontal and Vertical Reaction Force Testing for Synthetic Sports Surfaces <u>A. W. Walker</u> & A. Subic	<b>P84:</b> Effects of Binding Pedals on Muscle Activity and Mechanical Efficiency during Cycling Exercise in Athletes and Non-Athletes M. Maki, <u>T. Yoshida</u> & T. Tsuneoka	<b>P123:</b> A Method to Compute Tri-Axial Ground Reaction Forces without the use of a Force Platform <u>D. A. Hatfield</u> , N. Phipps & J. O. B. Greaves
<b>17:30 – 18:00</b>	<b>Congress Closing, Mauka Ballroom (including 8<sup>th</sup> ISEA and 5<sup>th</sup> APCST announcements)</b>		