

Seoul, Republic of Korea, June 13-16, 2012

Computer Assisted Orthopaedic Surgery

12th Annual Meeting of
CAOS-International
Final Program



Welcome to our CAOS meeting in Seoul in June 2012!

The 12th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery will be held in Seoul, Korea, from June 13 to 16, 2012. A special feature of this year's symposium is that we will have the meeting combined with 9th CAOS-Asia on June 13, 2012.

On behalf of the Organizing Committee, it is a great honor that CAOS-International has decided to have their 2012 Annual Meeting hosted in Seoul, and it is a pleasure for me to invite you to attend this gathering of the world's leading experts in the fields of navigation and robotics in orthopaedics and traumatology.

The organizing committee hopes this CAOS-International meeting can be the Agora for everyone interested in computer-assisted orthopaedic surgery and we have prepared a scientific program to facilitate the exchange of knowledge and ideas related to computer-assisted orthopaedic surgery. This includes lectures, discussions, and live surgeries on current controversies and most recent advances in computer-assisted orthopaedic surgeries and researches.

Seoul is the special city and capital of South Korea, hosted 1988 Summer Olympics, 2002 FIFA World Cup and the 2010 G-20 Seoul summit. I am sure that you will enjoy our beautiful city with all its colors, sounds, historic architectures and exotic markets.

I expect that this CAOS-International symposium will be a great occasion for fruitful collaboration and development of long-lasting relationships between clinical and basic research. We hope that you enjoy the symposium and have a most memorable stay in beautiful and historic area of Seoul.

I am looking forward to welcoming you all in Seoul, Korea!

***Professor Eun-Kyoo Song, M.D., Ph.D.
President of CAOS-International 2012***

Conference Chairman

Eun-Kyoo Song, M.D., Ph.D.

Department of Orthopaedic Surgery, Chonnam National University Hospital
Gwangju, Republic of Korea

Program Committee

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Philippe Merloz, M.D.

Grenoble, France

Frédéric Picard, M.D.

Clydebank, Great Britain

Nobuhiko Sugano, M.D.

Osaka, Japan

Award Committees

On Saturday, awards will be given for the best clinical and technical podium and poster presentations of the meeting. The four awardees will be selected by the following committees:

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Seoul, Korea

Jean-Yves Jenny, M.D.

Strasbourg, France

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Seoul, Korea

Ye-Soo Park, M.D.

Seoul, Korea

Klaus Radermacher, Ph.D.

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Milan, Italy

Andrea Ferretti, M.D.

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Antony Hodgson, Ph.D.

Vancouver, Canada

Philippe Merloz, M.D.

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Bern, Switzerland

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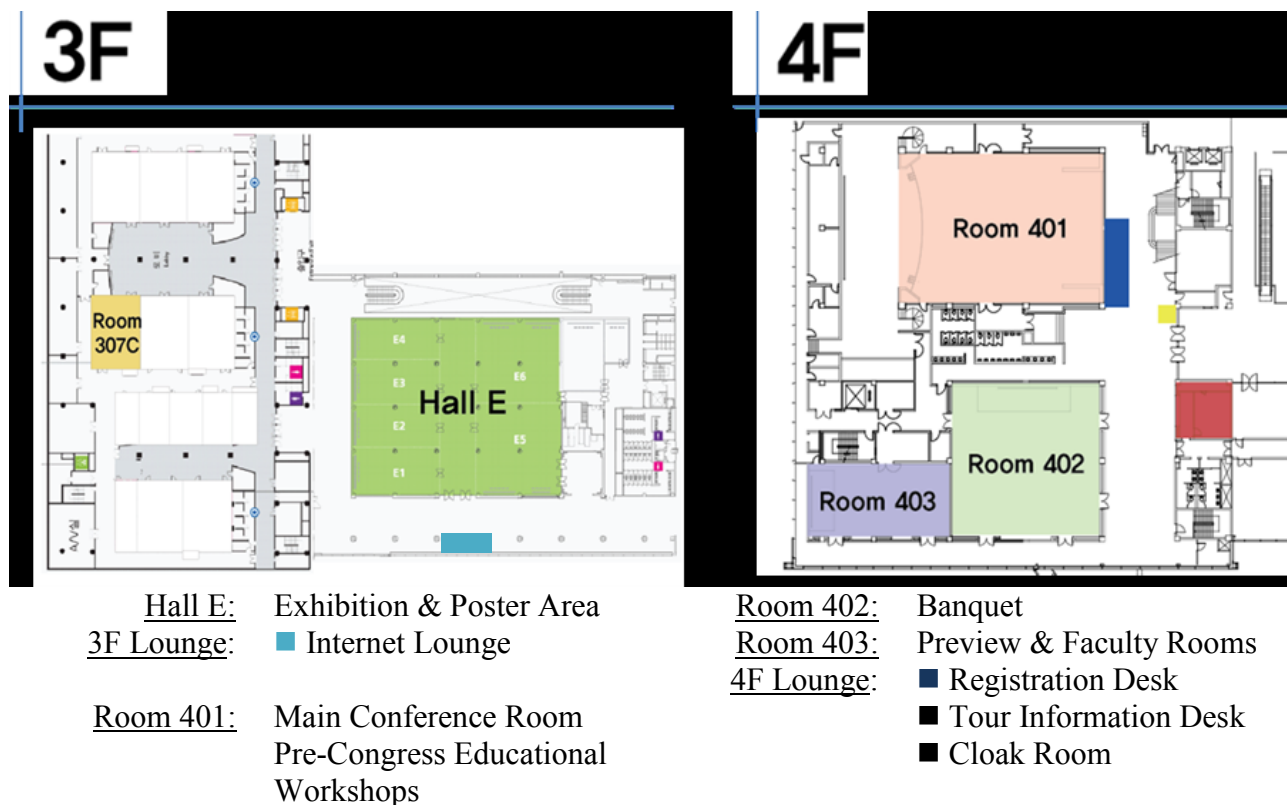
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Continuing Medical Education

The Korean Orthopedic Association has awarded **12 CME credits** for the 12th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery. **6 CME credits** can be claimed by one-day attendees.

Floor Plan



Wednesday, June 13, 2012

Pre-Congress Educational Workshops

After the great success during the last years, pre-congress educational workshops are offered in 2012 again. A faculty of international experts comprehensively introduces workshop participants to selected topics related to computer assisted orthopaedic surgery.

Based on the feedback of recent years, a one-track series of workshops is offered. They take place in room 401 at 14:30-18:00.

Program

- 14:30 Introduction to CAOS for hip and knee surgery
Nobuhiko Sugano, Osaka, Japan
- 15:00 Introduction to CAOS for spine and trauma surgery
Meir Liebergall, Jerusalem, Israel
- 15:30 THA navigation
Jun-Dong Chang, Seoul, Korea
- 15:45 Planning, use of hip sextant, and postoperative care in THR
Stephen B. Murphy, Boston, USA
- 16:00 THA robotics
Youn-Soo Park, Seoul, Korea
- 16:15 Early clinical experiences in PAO with custom guides
Klaus Radermacher, Aachen, Germany
- 16:30 TEA & COFFEE BREAK
- 16:45 TKA navigation
Young-Hoo Kim, Seoul, Korea
- 17:00 Active constraint robotics for uni-condylar knee surgery
Brian L. Davies, London, United Kingdom
- 17:15 Custom guides for TKA
Mahmoud Hafez, Cairo, Egypt
- 17:30 Trends and new approaches in CAOS
Branislav Jaramaz, Pittsburgh, USA & Klaus Radermacher, Aachen, Germany
- 18:00 END OF WORKSHOPS

Welcome Reception at the Industrial Exhibition

- 18:15 REGISTRATION & CAOS-INTERNATIONAL WELCOME RECEPTION

Participants of the above workshops are invited to join participants of the main conference in celebrating our 12th Annual Meeting of CAOS-International. This reception takes place in hall E3.

- 21:00 END OF THE DAY

Thursday, June 14, 2012

- 7:00 REGISTRATION
- 7:45 Introduction to the 12th Annual Meeting
Eun-Kyoo Song

Session I – Total Hip Arthroplasty, Part 1: Planning and Simulation

Chairmen: Kamal Deep and Brian L. Davies

- 8:00 Variation in contact areas in the proximal femur depending on implant design
Marquez-Lara A, Patel RM, Stulberg SD
- 8:10 Effect of optimizing bone-implant contact on hip offset and rotation with three contemporary uncemented metaphyseal engaging implants
Patel RM, Marquez-Lara A, Stulberg SD
- 8:20 Automated CT-based THA planning for optimizing joint functionalities: a "maximum a posterior" (MAP) estimation approach
Kagiyama Y, Otomaru I, Takao M, Sugano N, Minakuchi Y, Tada Y, Tomiyama N, Sato Y
- 8:30 The effects of surgical approaches and femoral stem designs on anteversion and the stem alignment in total hip arthroplasty
Abe H, Sakai T, Takao M, Nishii T, Nakamura N, Sugano N

Session II – Trauma

Chairmen: Meir Liebergall and Leo Joskowicz

- 8:50 Computerized navigation for length and rotation control in femoral fractures: a preliminary clinical study
Weil YA, Greenberg A, Khoury A, Mosheiff R, Liebergall M
- 9:00 Three dimensional fluoroscopy for detection of intra-articular hardware in a proximal humerus fracture model – a laboratory study
Weil YA, Beyth S, Abu-Ahmed A, Khoury A, Liebergall M, Safran O
- 9:10 The infraacetabular bone corridor: a three-dimensional CT-based visualization of a safe pathway for long screws
Mendel T, Arlt S, Marintschev I, Radetzki F, Noser H, Hofmann GO
- 9:20 CT-3D-fluoroscopy matching navigation of iliosacral screw insertion can reduce malposition rate even for less experienced surgeons
Takao M, Abe H, Tamura S, Nakasone S, Iwata H, Nishii T, Sakai T, Sugano N

Session III – Osteotomies

Chairmen: Meir Liebergall and Leo Joskowicz

- 9:30 Three dimensional simulation and patient specific instruments for transtrochanteric rotational osteotomy of the femur for osteonecrosis of the femoral head
Iwaki H, Ikebuchi M, Yoshida T, Minoda Y, Nakamura H

- 9:40 Results of navigated open wedge high tibial osteotomy compared with conventional cable technique
Seon JK, EK Song, Yim JH, Moon JY, Lee TM
- 9:50 CT-based navigation for curved periacetabular osteotomy
Tokunaga K, Dohmae Y, Watanabe K

Coffee Break and Poster Session – Part 1**3rd floor (Exhibition Area)**

- 10:00 POSTERS S1-S5 WERE RATED “SPECIAL POSTERS” INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. POSTERS WILL BE PRESENTED IN FIVE SESSIONS, DURING WHICH THE AUTHORS OF THE RESPECTIVE SESSION’S POSTERS WILL BE PRESENT AT THE POSTER BOOTHS. HOWEVER, ALL POSTERS AND SPECIAL POSTERS OF ALL SESSIONS WILL BE ON DISPLAY DURING THE ENTIRE TIME OF THE MEETING.
- S1) Accuracy and limitation of computer-guided curettage in benign bone tumor
Seo SW, Koh KR
- S2) Navigation controlled medial opening wedge high tibial osteotomy with minimal use of fluoroscopy
Kim TK, Chang CB, Lee KH, Chang MJ, Kang YG, Cho HJ, Koh IJ
- S3) Lateral registration of the pelvis based on consistent anatomical relationships – a CT study
Haimerl M, Wegner M, Schubert M, Kling S, Weider M, Jendrewski C
- S4) A comparison of intra-operative laxity and clinical outcomes in single-radius versus multi-radius femoral design for TKA
EK Song, Seon JK, Yim JH, Moon JY
- S5) Clinical accuracy of the HipSextant™ navigation system: multiuser experience
Murphy WS, Steppacher SD, Kowal JH, Murphy SB
- 1) Robotic orthopedic and trauma systems for external transosseous osteosynthesis
Klimov OV, Kozhukhin PV
- 2) The role of the popliteal tendon and popliteofibular ligament in preventing knee external rotation
Zhang H, Feng H, Hong L, Wang X, Zhang J, Liu X, Shen J
- 3) A novel system for hands free manipulation of digital X-rays in a sterile environment
Frame MC
- 4) Surgical navigation for corrective osteotomy of cubitus deformities using augmented reality techniques
Bong JH, Kim EG, Kim HM, Yoo SS, Song HJ, Park SS
- 5) Evaluation of components alignment during total hip arthroplasty with CT-based fluoro matched navigation system
Hayashi S, Nishiyama T, Fujishiro T, Hashimoto S, Kurosaka M
- 6) Effects of femoral component sagittal alignment on functional outcomes of total knee arthroplasty
Chung BJ, Kang YG, Chang CB, Park YB, Seong SC, Kim TK
- 7) Novel approach to reducing discrepancies in radiographic and navigational limb alignments in computer-assisted TKA
Chung BJ, Kang YG, Chang CB, Park YB, Seong SC, Kim TK

- 8) Development of a new pinless 2D-navigated technique for implant removal of screws in the SI-joint
Hofbauer VR, Matri F, Surke C, Kösters C, Fuchs T, Ruebberdt A, Raschke MJ
- 9) In-vivo patient-specific joint contact forces on medial and lateral compartments in total knee arthroplasty patients during walking
Kim YH, Park WM
- 10) Joint preserving limb salvage surgery under navigation guidance
Cho HS, Oh JH, Kim HS, Han I, Shin SH
- 11) The influence of the joint sutures on soft tissue balance in total knee arthroplasty
Lee TH, Tsukeoka T, Suzuki M
- 12) A case report – short term result for THA for the racehorse trainer: aiming for no limitation after THA, using a CT-based navigation system and four-dimensional motion analysis
Hirasawa N, Sakano E, Matsubara M, Sugano N, Tamura S, Muneta T
- 13) The three-dimensional visualization of the bony defect by the mirroring method based upon the contralateral bony geometry in total knee arthroplasty
Shimosawa H, Enomoto H, Niki Y, Toyama Y, Suda Y
- 14) Patient specific cutting guides for distal femoral osteotomies: a low cost method of producing accurate results
Clarke S, Cobb JP, Harris S, Aqil A, Andrews B
- 15) Clinical accuracy of component alignment using the three-dimensionally planned and controlled insertion of IM alignment rod in TKA
Sato T, Murayama T, Koga Y, Omori G, Watanabe S
- 16) Robotic-assisted total knee arthroplasty with minimum of five years follow-up compared with conventional total knee arthroplasty
EK Song, Seon JK, Yim JH, Moon JY, Kim HS
- 17) The use of CAOS in complex cases of hip and knee arthroplasty: experience from a developing country
Hafez MA
- 18) A novel three-dimensional method for modelling the femoral neck axis
Mandalia R, Masjedi M, Harris SJ, Cobb JP
- 19) Kinematic profile of normal knees
Deep K

Session IV – Total Knee Arthroplasty, Part 1: Outcomes

Chairmen: David Stulberg and Klaus Radermacher

- 11:00 Ten-year results concerning loosening rates of navigated vs. conventional total knee arthroplasty with Aesculap search prosthesis implanted in 1999
Kohler S, Haaker R, Baumbach J
- 11:10 5 year follow-up: 100 conventional non-navigated versus 100 computer-assisted navigated total knee arthroplasties – a prospective randomized trial
Cip JC, Widemschek MW, Mayr EM, Benesch TB, Von Strempel AVS, Martin AM

- 11:20 Imageless computer assisted total knee arthroplasty: a meta-analysis of the current literature
Rebal BA, Babatunde OM, Lee JH, Geller JA, Macaulay W
- 11:30 If CAS is worth using in primary TKR, what about revision TKR?
Lionberger DR, Pandit Talati P
- 11:40 CAS vs. manual TKA: no difference in clinical or radiographic outcomes at 5-year follow-up
Yaffe MA, Chan P, Luo M, Patel A, Cayo M, Stulberg SD
- 11:50 Correlation of parameters which affect clinical outcomes after kinematic alignment of total knee arthroplasty
Park SE, Kim SK, Back YW

Lunch Break and Live Surgery I

Chairmen: S. David Stulberg and Choong-Hyeok Choi

- 12:00 TKA-Patient specific instrument (DePuy)..... Operating Surgeon: Myung-Chul Lee
Lunch boxes will be served in Room 401

Keynote Lecture I

Chairman: Eun-Kyoo Song

- 13:00 Image guided navigation in robotic surgery
Jong-Oh Park, Ph.D. (Chonnam National University)

Session V – Unicompartamental Knees

Chairmen: Jean-Yves Jenny and Lutz-Peter Nolte

- 13:30 Robot-assisted, patient-specific, unicompartamental knee arthroplasty: a pilot study
Andrews BL, Aqil A, Manning V, Cobb JP
- 13:40 Computer assisted UKR: a prospective randomized study using a dedicated software
Confalonieri N, Manzotti A
- 13:50 Seven year follow up of a PRCT of robot assisted uni-compartmental knee arthroplasty
Henckel J, Alsop H, Rodriguez Y Baena F, Davies BL, Cobb JP
- 14:00 Ergonomics of robotic orthopedic surgery: a program to simultaneously improve operating room efficiency and quality of care
Ballash M, Branch S, Granchi C, Conditt MA

Session VI – Total Knee Arthroplasty, Part 2: Kinematics and Balancing

Chairmen: Jean-Yves Jenny and Lutz-Peter Nolte

- 14:10 Non-invasive quantification of knee joint kinematics
Russell D, Deakin A, Fogg Q, Picard F
- 14:20 Traditional sequential medial soft tissue release may not be the best sequence for balancing in total knee arthroplasty for varus knees
Deep K, Duffy S, Freer I, Goudie S, Nalwad H, Deakin A, Payne A
- 14:30 Joint gap kinematics in total knee arthroplasty measured by navigation system
Choi CH, Lee JK

- 14:40 Femoral component rotation in four different kinds of gap techniques including navigation in TKA
Lee MC, Lee S, Jang J, Lee JK, Roh YW, Chun SH, Seong SC
- 14:50 Preoperative prediction of gap balance based on the radiographic flexion and extension laxities in robotic total knee arthroplasty
Yim JH, EK Song, Seon JK, Park CH, Moon JY, Kang KD

Coffee Break and Poster Session – Part 2

3rd floor (Exhibition Area)

- 15:00 POSTERS S6-S10 WERE RATED “SPECIAL POSTERS” INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. POSTERS WILL BE PRESENTED IN FIVE SESSIONS, DURING WHICH THE AUTHORS OF THE RESPECTIVE SESSION’S POSTERS WILL BE PRESENT AT THE POSTER BOOTHS. HOWEVER, ALL POSTERS AND SPECIAL POSTERS OF ALL SESSIONS WILL BE ON DISPLAY DURING THE ENTIRE TIME OF THE MEETING.
- S6) Variation in coronal alignment with different computer assisted methods
Mihalko WM, Saleh KJ, Hakki S
- S7) Image-free navigation is effective in conversion of high tibial osteotomy to total knee arthroplasty
Iwasawa T, Ishibashi Y, Tsuda E, Yamamoto Y, Toh S
- S8) Musculoskeletal model of diaphyseal fractured femur using McKibben pneumatic actuators for fracture reduction force simulations
Syed Shikh S, Joung S, Kobayashi E, Nakajima Y, Ohashi S, Bessho M, Ohnishi I, Sakuma I
- S9) The extension and flexion gap can be changed after bone cutting in total knee arthroplasty
Chun SE, Lee S, Jang J, Lee JK, Roh YW, Seong SC, Lee MC
- S10) The effect of total hip arthroplasty on pelvic tilt
Murphy WS, Klingenstein G, Murphy SB, Zheng G
- 20) Navigation-assisted total knee arthroplasty with normal pressure drainage reduces blood loss – a prospective comparative study of three modalities
Ko JY, Chou WY, Wong T, Wang FS
- 21) Assessment of joint gap for mid-flexion (45°) and hyper-flexion (120°) during navigation-assisted total knee arthroplasty
Yang JH, Jeong HI, Oh KJ, Yoon JR
- 22) Comparison of manual rasping and robotic milling for a short metaphyseal fitting stem implantation in total hip arthroplasty: a cadaveric biomechanical study
Park YS, Moon YW, Lim SJ, Kim SM
- 23) Knee replacement surgery using computer navigation for posttraumatic femoral deformity
Kaminsky AV, Gorbunov EV
- 24) Short-term clinical results after computer-navigation assisted ACL reconstruction
EK Song, Seon JK, Yim JH, Moon JY
- 25) A CT-less image model with bone cutting dynamics for safe bone cutting
Yen PL, Hung TSS, Chu YJ
- 26) Variation in supine pelvic tilt in patients undergoing total hip arthroplasty
Murphy WS, Kowal JH, Murphy SB

- 27) Does extension balance affect flexion balance on TKA?
Kawamoto T, Iida S, Suzuki C, Sano S, Shinada Y

Live Surgery II

Chairmen: Jean-Yves Jenny and Ye-Yeon Won

- 15:40 TKA-Imageless navigation, Orthopilot + e.motion (B.Braun)
 Operating Surgeon: Seung-Beom Han

Session VII – Planning, Robotics and New Approaches

Chairmen: Stephen B. Murphy and Antony Hodgson

- 16:40 A novel passive/active hybrid robot system for orthopaedic surgery
Chui CS, Kuang SL, Liu WY, Wang Y, Leung KS
- 16:50 Computer-assisted, tissue-preserving THA with early mobilization: impact on length of stay, disposition, and complications
Murphy AC, Casey D, Gulczynski D, Murphy SB
- 17:00 Fast and accurate DRRs for X-ray based joint surgery planning
Ehlke M, Seim H, Lamecker H, Yang X, Zachow S
- 17:10 Can preoperative templates replace intraoperative CAS measurements?
Lionberger DR, Pandit Talati P

Session VIII – Oncology and Tumors

Chairmen: Nobuhiko Sugano and Xiu Mei Kang

- 17:20 Computer assisted means of resection and reconstruction in bone tumor surgery
Gerbers JG, Jutte PC
- 17:30 Haptic robot-assisted surgery substantially improves accuracy of wide resection of bone tumors
Khan FA, Pearle A, Boland P, Lipman J, Lightcap C, Healey J
- 17:40 The outcomes of computer-assisted bone tumor surgery: minimum 3-year follow-up
Cho HS, Oh JH, Kim HS, Han I, Shin SH
- 17:50 END OF THE DAY

Friday, June 15, 2012

7:45 REGISTRATION

Session IX – Total Knee Arthroplasty, Part 3: Alignment

Chairmen: Frédéric Picard and Yoon Hyuk Kim

- 8:00 Accuracy and repeatability of axes for femoral component rotation in total knee arthroplasty: a cadaveric study
Duffy SA, Deep K, Goudie ST, Freer I, Deakin AH, Payne AP
- 8:10 The mechanical accuracy of post-navigation conventional techniques in total knee arthroplasty
Lin CL, Chen Y, Tsai SL, Chiu KC, Chang CW, Yang CY
- 8:20 Femoral component rotation in total knee arthroplasty: an MRI-based evaluation of our options
Patel AR, Yaffe MA, Tulasi R, McCoy BW, Ghate R, Stulberg SD
- 8:30 Does distal femoral deformity affect the postoperative femoral component rotation and femoral anteversion after total knee arthroplasty?
Lim HC, Kim SJ, Bae JH, Kim JG
- 8:40 Intra-operative alignment deviation in computer-navigated total knee arthroplasty
Howie DF, Love GJ, Deakin AH, Kinninmonth AWG
- 8:50 Joint line adjustment for correction of fixed flexion contractures in total knee replacement using CAS
Lionberger DR, Pandit Talati P
- 9:00 Robot-assisted implantation improves the precision of component position in minimally invasive total knee arthroplasty – a controlled cadaveric study using three-dimensional CT assessment of the alignment
Moon YW, Park YS, Ha CW, Kim SM

Session X – Spine

Chairmen: Philippe Merloz and Jun-Dong Chang

- 9:20 Efficacy of computer-based simulation for the correction of kyphotic deformities
Park YS, Baek SW, Kim HS
- 9:30 Factors related to a large change of the pelvic sagittal inclination from supine position to standing position – standing lateral radiograph of the whole spine study
Tamura S, Takao M, Sakai T, Nishii T, Sugano N
- 9:40 The accuracy of pedicle screw placement in scoliosis surgery: comparison between intraoperative O-arm-based and computed tomography-based navigation
Kotani T, Akazawa T, Koyama K, Yagi T, Michiura E, Sonoda M, Fujita Y, Minami S

Session XI – Other Joints**Chairmen: Hiroyuki Enomoto and Young-Wan Moon**

- 10:00 Accuracy of a new computer assisted midcarpal wrist fusion technique (computer assisted three corner arthrodesis CA-3CA). Control study comparing postoperative results vs. computer planning (n=8)
Vanhove W, Chellaoui K, Verstraeten T, Tampere T, Hollevoet N, Victor J
- 10:10 Pediatric supra-condylar humerus fractures – computer assisted finite element analysis of fixation configuration
Lamdan R, Symanovsky N, Joskowicz L, Liebergall M, Gefen A, Peleg E
- 10:20 Three-dimensional motion analysis of elbow joint and pseudojoint of non-united lateral condyle of humerus
Kim E, Jeong HJ, Park SJ, Murase T, Sugamoto K, Park SS

Coffee Break and Poster Session – Part 3**3rd floor (Exhibition Area)**

- 10:30 POSTERS S11-S14 WERE RATED “SPECIAL POSTERS” INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. POSTERS WILL BE PRESENTED IN FIVE SESSIONS, DURING WHICH THE AUTHORS OF THE RESPECTIVE SESSION’S POSTERS WILL BE PRESENT AT THE POSTER BOOTHS. HOWEVER, ALL POSTERS AND SPECIAL POSTERS OF ALL SESSIONS WILL BE ON DISPLAY DURING THE ENTIRE TIME OF THE MEETING.
- S11) High incidence of anterior femoral cortex notching using navigation system in total knee arthroplasty
Minoda Y, Watanabe K, Yoshida T, Ikebuchi M, Iwaki H, Nakamura H
- S12) Clinical outcomes of patient-specific (MyKnee™) cutting blocks in total knee arthroplasty: preliminary prospective study results
Goldberg TD, Curry WT, Bush JW
- S13) Clinical results and survivorship of the navigated Columbus total knee arthroplasty at five year follow-up
Sciberras NC, Baines J, Deakin AH, Picard F
- S14) Computer-assisted navigation system helps experienced surgeon improve outcome in total knee arthroplasty
Jih YK, To W, Sung HC, Feng SW, Wen YC
- 28) Navigation system assisted dual-plane high tibial osteotomy to treat the varus deformity of knee joint
Liu MD, Zhang MD, Feng MD
- 29) Measurement of the knee flexion angle with a smartphone application is precise and accurate
Jenny JY
- 30) Comparison of stability and functional outcomes in anterior cruciate ligament reconstruction: anatomical vs. non-anatomical femoral tunnel
Seon JK, EK Song, Yim JH, Moon JY
- 31) Results of total knee arthroplasty with Nexgen® implant using navigation system (Brainlab®): results with a 5-year follow up
Lee YG, Jeon SY, Shin HK, Choi YH, Yoon YS, Lee HS, Kwak WS, Lee YH

- 32) Does the reducing femoral component in PS-TKA using computer-assisted surgery has no impact on the extension gap? A cadaveric study
Chutchawan P, Ruangthong N, Sriphirom P
- 33) Application of Allen spine system in intraoperative three-dimensional image (O-arm) based navigation surgery
Koyama K, Michiura E, Yagi T, Fujita Y, Akazawa T, Minami S, Kotani T
- 34) A new computer-aided and robot-assisted surgery for anterior cruciate ligament reconstruction
Huynh LM, Kim YH
- 35) Aging effect on femoral stress fracture risk after computer-navigated total knee arthroplasty
Kim YH, Kim K, Park WM
- 36) A new registration method for imageless computer navigation in total hip arthroplasty: a cadaveric study
Davis ET, Bathis H, Mayman D, Wegner M, Schubert M, Gneiting S
- 37) Acetabular component placement using imageless navigation with the concept of combined anteversion – comparison with non-navigated total hip arthroplasty
Chang JD, Ranjan B, Kim IS
- 38) Computer navigation aided precision resection part of acetabular and reconstruction with total hip prosthesis for malignant bone tumor around acetabular
Nio X, Zhang Q
- 39) Towards a height and inclination adjustable tibial plate to postoperatively correct the residual ligament imbalance
Almouahed S, Hamitouche C, Stindel E, Roux C
- 40) Differing prosthetic alignment and femoral component sizing among three computer assisted CT-free navigation systems in TKA
Sasaki HI, Matsumoto TO, Shibamura NA, Kubo SE, Tei KA, Matsumoto AK, Kuroda RO, Kurosaka MA
- 41) Reconstructed CT assessment of image-free navigation assisted cup placement in total hip arthroplasty in Asian physique
Oh KJ, Kim TH
- 42) Robot-assisted, custom-made massive medial unicondylar knee arthroplasty for traumatic bone and joint loss
Andrews BL, Sunmugam S, Floyd D, Aqil A, Cobb JP
- 43) Development and assessment of the automatic rehabilitation
Hung SS, Yen PL, Lee MY
- 44) Use of computer-aided navigation systems in static and dynamic stability testing of ACL-deficient and reconstructed knees: in-vivo evaluation with Orthopilot ACL 3.0
Koh JL, Laskovski J
- 45) Cup placement accuracy with robot-assisted total hip arthroplasty
Padgett DE, Conditt MA, Jones JA, Branch SH, Dunbar NJ, Banks SA
- 46) Registration and tracking accuracy of the HipSextantTM navigation system in patients with DDH
Tokunaga K, Ikeda T

Keynote Lecture II

Chairman: Eun-Kyoo Song

- 11:30 TKA navigation: how often necessary and how much beneficial?
Dae-Kyung Bae, M.D., Ph.D. (Kyung Hee University)

Lunch Break and Live Surgery III

Chairmen: William L. Bargar and Myung-Chul Yoo

- 12:00 Robotic THA (Curexo) Operating Surgeon: Youn-Soo Park
Lunch boxes will be served in Room 401

General Assembly of CAOS-International

- 13:00 ALL MEMBERS OF THE INTERNATIONAL SOCIETY FOR COMPUTER ASSISTED ORTHOPAEDIC SURGERY ARE KINDLY INVITED TO JOIN THE CAOS-INTERNATIONAL GENERAL ASSEMBLY IN THE LECTURE HALL.

Session XII – Total Knee Arthroplasty, Part 4: Custom Jigs

Chairmen: Jan von Recum and Sang-Eun Park

- 13:30 The accuracy of custom-fit total knee arthroplasty using a navigation system
EK Song, Seon JK, Park CH, Yim JH, Moon JY
- 13:40 Fidelity of preoperative planning to intraoperative execution in total knee arthroplasty: an analysis of customized instrumentation
Patel AR, Yaffe MA, Luo M, Mccoy BW, Ghate R, Stulberg SD
- 13:50 A comparison of the accuracy of customized instrumentation in TKA with arthroplasty and general orthopaedic surgeons
Yaffe MA, Patel A, Mccoy BW, Meisles D, Ghate R, Meisles J, Stulberg SD
- 14:00 Clinical, functional, and radiographic outcomes of TKA performed with customized instrumentation
Yaffe MA, Patel A, Luo M, Chan P, Cayo M, Stulberg SD
- 14:10 Computer-assisted surgery versus custom cutting guides for component alignment in total knee arthroplasty
Lembach ML, Swank ML
- 14:20 Can patient specific instruments-guided total knee arthroplasty deliver its proposed advantages?
Chen JY, Lo NN, Yeo SJ, Chin PL

Exhibition Presentations

- 14:30 THE FOLLOWING SYSTEM PRESENTATIONS WILL TAKE PLACE AT THE RESPECTIVE COMPANY'S BOOTH:
- B.Braun Aesculap:** OrthoPilot TKA smart + Vega System IQ
- Curexo Inc.:** Robotic TKA – DigiMatch ROBODOC® Surgical System
- Zimmer:** Computer Assisted Solution – eLIBRA Dynamic Knee Balancing System

Coffee Break and Poster Session – Part 4

3rd floor (Exhibition Area)

- 15:30 POSTERS S15-S19 WERE RATED “SPECIAL POSTERS” INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. POSTERS WILL BE PRESENTED IN FIVE SESSIONS, DURING WHICH THE AUTHORS OF THE RESPECTIVE SESSION’S POSTERS WILL BE PRESENT AT THE POSTER BOOTHS. HOWEVER, ALL POSTERS AND SPECIAL POSTERS OF ALL SESSIONS WILL BE ON DISPLAY DURING THE ENTIRE TIME OF THE MEETING.
- S15) Soft tissue balancing using a navigation system with an offset type tensor in cruciate-retaining and posterior-stabilized total knee arthroplasty
Matsumoto T, Kubo S, Muratsu H, Matsushita T, Tei K, Sasaki H, Kuroda R, Kurosaka M
- S16) Combined anteversion of the THA implanted with image-free cup navigation and without stem navigation
Fukunishi S, Fukui T, Nishio S, Fujihara Y, Okahisa S, Yoshiya S
- S17) Leg length and offset measurements in navigated total hip replacement (THA)
El Haj M, Mattan Y, Kandel L, Rivkin G, Lubovski O, Liebergall M
- S18) Use of image-free navigation in determination of acetabular cup orientation: a comparison with a single X-ray image-based 2D/3D reconstruction method
Franke J, Xie W, Von Recum J, Nolte LP, Grützner PA, Zheng G
- S19) Can patient-specific mechanical navigation of cup implantation be performed based only on plain radiographs?
Murphy WS, Steppacher SD, Kowal JH, Murphy SB
- 47) 2D-fluoroscopic based navigation for percutaneous screw fixation of glenoid fractures
Gras F, Marintshev I, Rausch S, Aurich M, Klos K, Hofmann GO
- 48) Computer-assisted to personalized resection of bone tumor and precise bone reconstruction
Ding HW, Tu Q, Wang H, Zeng SL, Liu B, Shen JJ, Yi C
- 49) Comparison of the measurement of the anterior knee laxity by the GNRB system and by a navigation system
Jenny JY, Arndt J
- 50) Early clinical and radiological outcomes of navigation-guided cruciate-retaining floating platform mobile-bearing total knee arthroplasty
Han S, Lee D, Park S
- 51) Computerized three-dimensional templating for shoulder joint arthroplasty
Jeong JY, Park JM
- 52) Alignment changes after fixation of implant and re-registration in imageless navigated total knee arthroplasty
Jang J, Lee S, Lee JK, Roh YW, Chun SH, Seong SC, Lee MC
- 53) Use of intraoperative 3D volume visualization for navigated bone tumor resection: a report of two cases
Smith EJ, Rudan JF, Bardana DD, Ellis RE
- 54) The results of robot-assisted unicompartmental knee arthroplasty
Yoon SH, Lee CT, Hur JH, Kwon OM, Trabish M, Park JS, Lee HJ

- 55) Navigation does not improve radiographic sagittal alignment of a femoral component in TKA
Chung BJ, Kang YG, Chang CB, Park YB, Seong SC, Kim TK
- 56) Non-invasive assessment of lower limb alignment is accurate for pre-operative planning and post-operative follow up
Clarke JV, Picard F, Riches PE, Deakin AH
- 57) Navigation-assisted total knee arthroplasty with normal pressure drainage reduces blood loss – a prospective comparative study of three modalities
Jih YK, Wen YC, To W, Feng SW, Ka KS
- 58) A novel and reproducible reference axis that indicates axial rotation of distal tibia
Enomoto H, Nakamura T, Shimosawa H, Waseda A, Niki Y, Toyama Y, Suda Y
- 59) Does heat developed during robot-assisted THA affect the osteoblastic activity of cells on cutting surface?
Chun YS, Cho YJ, Rhyu KH
- 60) Evaluation of imageless navigation system with computed tomography in total hip arthroplasty
Taki N, Mitsugi N, Mochida Y, Aratake M, Ota H, Kobayashi H, Saito T
- 61) Computer navigation aided precision aggressive curettage for treating giant cell tumor of limbs
Zhang Q, Niu X
- 62) Lateral approach of computer-aided robotic system for less-invasive total knee arthroplasty
Huynh LM, Kim YH
- 63) Development of an orthopedic surgery planning system for implant positioning with user-definable constraints
Park SY, Ha YC, Yeom JS, Kim NK
- 64) Custom made femoral component for total hip replacement: a clinical and technical challenge in nine cases
Merloz P, Eid A, Tonetti J, Ruatti S
- 65) Limited flexion of the femoral component may serve as a tool to manage the flexion gap in navigated total knee arthroplasty
Matziolis G, Perka C

Session XIII – Total Hip Arthroplasty, Part 2: Navigation and Alternatives

Chairmen: David Kahler and Julien Leboucher

- 16:40 Validation of patient specific templates in total hip arthroplasty
Sakai T, Murase T, Hanada T, Kitada M, Nishii T, Takao M, Yoshikawa H, Sugano N
- 16:50 Registration and tracking accuracy of the HipSextant™ navigation system
Murphy WS, Steppacher SD, Kowal JH, Murphy SB
- 17:00 Unexpected fenestration of the lateral femoral cortex during robot-assisted THA: the clinical importance of the location of bone-motion-monitoring device
Rhyu KH, Chun YS, Kim YH, Cho JY
- 17:10 Accuracy of robotic assisted femoral osteochondroplasty for treatment of FAI
Ranawat A, Kang H, Kasodekar S, Nortman S, Jones J, Conditt MA

Session XIV – ACL & Patient Specific Models and Instruments

Chairmen: Norberto Confalonieri and François Leitner

- 17:20 Comparison of total knee arthroplasty using patient specific instruments versus conventional instruments
Roh YW, Lee SM, Lee SH, Jang J, Lee JK, Chun SH, Seong SC, Lee MC
- 17:30 Construction of statistical shape models of the knee and their application in reconstruction of patient-specific 3D models from a single X-ray: a case study
Zheng G, Franke J, Xie W, Von Recum J, Grützner PA, Nolte LP
- 17:40 ACL deficient knee: the effect of extraarticular and intraarticular reconstructions on pivot shift phenomenon: clinical assessment using navigation
Ferretti A, Monaco E, De Carli A, Conteduca F, Maestri B, Iorio C
- 17:50 Navigated anterior cruciate reconstruction: radiological validation of a non-image based system
Jenny JY, Abane L

CAOS-International Banquet

19:00 CAOS-INTERNATIONAL BANQUET (ROOM 402)

- Presentation of the Maurice E. Müller Award for Excellence in Computer Assisted Surgery
- Introduction of the new CAOS-International President
- Invitation to the 13th Annual Meeting of CAOS-International in Orlando in 2013

Participants will be entertained by the following Korean Traditional Performances. It is imperative for you to purchase ticket for attending banquet; you can buy it at registration desk on-site as well.



Buchaechum (Fan dance) is performed by a troupe of women with colorful folding fans. The main feature of this dance is a variation of the movements of opening, closing, fluttering of the fans, and beauty of Korean women.



One Korean art form that has an international appeal is 'Samulnori'. Now, it is a word that refers to a percussive performance with 'Kkwaenggari', 'Jing', 'Janggo', and 'Buk'. Samulnori has become a type of music with its root in traditional Korean arts.



Gayageum made by Paulownia coreana body with 12 vertical twisted silk threads makes a pure sound with fingers. This is used widely in Korea Traditional music as well as various ways. This is also one of the most popular Korea Traditional musical instruments because of elegant and soft sound color.

Saturday, June 16, 2012

7:45 REGISTRATION

Session XV – Total Hip Arthroplasty, Part 3: Navigation and Outcomes

Chairmen: Sang-Eun Park and Yoshiyuki Kagiya

- 8:00 Evaluation of acetabular component alignment change during screw fixation using navigation system
Fujishiro T, Nishiyama T, Hayashi S, Hashimoto S, Shibamura N, Kurosaka M
- 8:10 Total hip replacement: results of a continuous cohort study
Leboucher J, Sauleau V, Lefèvre C, Stindel E
- 8:20 Accuracy of cup position and leg lengthening in THA for dysplastic hip using imageless navigation system
Ohashi H, Inori F, Yo H, Okajima Y, Matsui Y, Shintani K
- 8:30 Navigated vs. non-navigated acetabular component positioning
Lee JH, Johnson SH, Macaulay WB, Geller JA
- 8:40 A new method of registration in navigated hip arthroplasty without the need to register the anterior pelvic plane
Davis ET, Wegner M, Schubert M, Haimerl M
- 8:50 The accuracy of a mechanical cup alignment guide in THA through direct anterior and posterior approaches measured with CT-based navigation
Maeda Y, Nakamura N, Kitada M, Takao M, Sakai T, Nishii T, Sugano N
- 9:00 Accuracy of CT-based navigation in revision THA
Nakamura N, Nishii T, Kitada M, Sugano N

Session XVI – Registration, Segmentation and Modeling

Chairmen: Young-Hoo Kim and Hans P. Lamecker

- 9:20 Automated muscle segmentation from 3D CT data of the hip using hierarchical multi-atlas method
Yokota F, Takaya M, Okada T, Takao M, Sugano N, Tada Y, Tomiyama N, Sato Y
- 9:30 Intraoperative measurement of mechanical axis alignment by automatic image stitching: a human cadaver study
Brand AG, Wang L, Fallavollita P, Sandner P, Navab N, Euler E, Thaller PH, Weidert S
- 9:40 3D bone surface extraction from ultrasound volumes: optimization of 3D phase symmetry metric and clinical evaluation for pelvic ring fractures
Hacihaliloglu I, Abugharbieh R, Hodgson AJ, Guy P
- 9:50 Evaluation of amount of bony cut using a novel image-matching software after total knee arthroplasty
Tei K, Ishida K, Shibamura N, Matsumoto T, Sasaki H, Kubo S, Kurosaka M, Kuroda R

Coffee Break and Poster Session – Part 5

3rd floor (Exhibition Area)

- 10:00 POSTERS S20-S23 WERE RATED “SPECIAL POSTERS” INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. POSTERS WILL BE PRESENTED IN FIVE SESSIONS, DURING WHICH THE AUTHORS OF THE RESPECTIVE SESSION’S POSTERS WILL BE PRESENT AT THE POSTER BOOTHS. HOWEVER, ALL POSTERS AND SPECIAL POSTERS OF ALL SESSIONS WILL BE ON DISPLAY DURING THE ENTIRE TIME OF THE MEETING.
- S20) Computarized surgical planing and personalized patient instrumentation for total knee arthroplasty
Wu H, Bercovy M
- S21) Detecting bony deformity in cam femoroacetabular impingement: a new 2D diagnosis graph
Kang X, Zhang H, Garbuz D, Wilson DR, Hodgson AJ
- S22) The short term results of hip resurfacing arthroplasty using personalized instrumentation
Yoon SH, Lee CT, Hur JH, Kwon OM, Trabish M, Park JS, Lee HJ
- S23) Measurements of femoral antetorsion values for straight standard and short modular hip stems by THA navigation
Lazovic D
- 66) Contouring anatomical plasty on the distal end of the humerus using a navigation system
Ikeda M, Kobayashi Y, Ishii T, Shimizu A, Saito I, Mochida J
- 67) Minimally invasive posterior lumbar interbody fusion with isocentric C-arm fluoroscopic navigation in elderly patients 80 years of age or older
Segi N, Sato K, Ando T, Katayama Y, Kishida S
- 68) Navigated planning for revision total knee replacement
Jenny JY
- 69) Comparison of total knee arthroplasty using conventional method and image-free navigation system in severely deformed femur
Kyung HS, Ihn JC, Baek SH, Chun SH
- 70) Discrepancies between image-free navigation and radiological limb alignment measurements in open wedge high tibial osteotomy
Han S, Lee D, Park S, Shin Y
- 71) Femoral sagittal alignment of total knee arthroplasty: how much do we know about that?
Chung BJ, Kang YG, Chang CB, Park YB, Seong SC, Kim TK
- 72) Robotic arm assistance for unicompartmental knee arthroplasty – a pilot study
Rebal BA, Lee JH, Geller JA, Macaulay W
- 73) A comparison of ankle alignment after TKA between computer-assisted surgery (CAS) and conventional
Raungthong N, Sriphirom P
- 74) Direct application of MR images to computer-assisted bone tumor surgery
Kim HS, Han I, Shin SH, Oh JH, Cho HS
- 75) Variability of center of rotation in knee joint during daily activities using novel motion analysis technology
Kim YH, Feng J, Kim K, Shin JH, Lim DS

- 76) Prediction of the 'grand-piano sign' during total knee replacement during total knee replacement: a computer-simulation study
Ji HM, Won YY, Park M
- 77) Radiological study of total knee arthroplasty using robot-assisted and conventional manual method in severe varus deformity
Yoon SH, Lee CT, Hur JH, Kwon OM, Trabish M, Park JS, Lee HJ
- 78) Weight-bearing simulation of imageless navigation-assisted opening wedge high tibial osteotomy
Oh KJ, Chun SH, Yang JH
- 79) Which technique is better for TKA: custom-made cutting guides, navigation or conventional?
Hafez MA
- 80) Analysis of inter-individual anatomical shape variations of joint structures
Bindernagel M, Kainmueller D, Ramm H, Lamecker H, Zachow S
- 81) Evaluating pre-operative coronal plane deformity in total knee arthroplasty: standing radiographs vs. customized instrumentation software
Patel AR, Yaffe MA, Luo M, Ghate R, Stulberg SD
- 82) Comparison of the mobile-bearing and fixed-bearing designs in high flexion total knee arthroplasty using an navigation system
Suh JT, Kim TW
- 83) Registering intra-operative ultrasound with computed tomography using Gaussian mixture models
Brounstein A, Hacihaliloglu I, Guy P, Hodgson A, Abugharbieh R

Session XVII – Total Knee Arthroplasty, Part 5: Outcomes and Challenges

Chairmen: Hirotugu Ohashi and Ping-Lang Yen

- 11:00 Does the severity of preoperative varus deformity influence postoperative alignment in computer-assisted total knee arthroplasty? A five-to-eight year follow-up study
Bae DK, Song SJ, Heo DB, Park CH
- 11:10 Comparison of results of total knee arthroplasty performed using the navigation system and the conventional technique
Seon JK, EK Song, Yim JH, Moon JY
- 11:20 Computer-assisted navigation system helps experienced surgeon improve outcome in total knee arthroplasty
Ko JY, Wong T, Chen SH, Wang FS, Chou WY
- 11:30 Do we need computer assistance to improve the survival of primary total knee arthroplasty? A minimum ten years follow-up
Kim YH, Park JW, Kim JS
- 11:40 Computer assisted total knee arthroplasty following prior fractures around the knee with retention of hardware
Confalonieri N, Manzotti A
- 11:50 The benefit of computer assisted total knee arthroplasty in patients for whom it would be difficult to use the conventional technique
Bae DK, Song SJ, Heo DB, Nam DC

Scientific Awards Ceremony

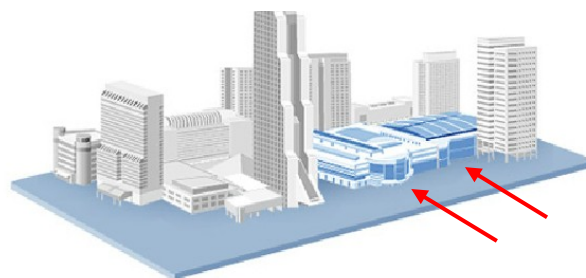
- 12:00 Best clinical poster presentation award
Sponsored by B.Braun
- Best technical poster presentation award
Sponsored by B.Braun
- Best clinical podium presentation award
Sponsored by B.Braun
- Best technical podium presentation award
Sponsored by B.Braun

Closing

- 12:15 Closing remarks
Eun-Kyoo Song

Venue Information

Venue COEX, World Trade Center
159 Samseong-dong
Gangnam-gu
Seoul 135-731
Korea
<http://coex.co.kr/>



How to get to COEX



COEX is located in the World Trade Center Complex in Gangnam District south of the Han River in Seoul. You can find COEX at Samseong Station on subway line number two or at Cheongdam Station on subway line number seven.

From Incheon International Airport to COEX

Taxi It takes about 60-100 minutes.

Limousine Bus There are many limousine buses leaving from Incheon International Airport to the Venue and hotels. To purchase the bus ticket, you are advised to go to the Transportation Information Counter (near the exits 4, 10, 11) on the arrival floor (1st floor) of passenger terminal. Limousine **Bus 6704** at gate 4B, 11A and **bus 6103** at gate 4A, 10B leave for COEX.

From Gimpo International Airport to Venue COEX

Taxi It takes about 40-60 minutes.

Limousine Bus There are many limousine buses leaving from Gimpo International Airport for the Venue and hotels. To purchase the bus ticket, you are advised to go to the Transportation Information Counter on the arrival floor (1st floor) of passenger terminal. The **Bus 6104** at platform 3 out of gate 8 leaves for COEX.

Presenter Guideline

Speaker Preview Room (403)

Presenter preview room will be provided to facilitate any last minute details and changes in your presentation. If you have embedded video in your presentation, it is imperative to be checked prior to your presentation in order. Due to strict time constraints between sessions, it will not be possible to amend or review slides in the session rooms. Would all presenters please ensure that any amendments are completed in the presenter preview room at least **3 hours prior** to your scheduled presentation session. The presenter preview room will be staffed to assist your review, compatibility or formatting problem. Please Do Not bring your presentation to the session room directly. Also our PC is based on Window system and if you use other system, Mac or Linux, Please bring your notebook and must inform us that you will use your notebook in advance.

- Presenter Preparation Room: Conference room 403
- Operation hours: 07:30-18:00

→ Presenters who are scheduled to present on 08:00 and 09:00 of morning session or want to check your presentation **please come to presenter preview room by 07:00 in that morning and at least an hour prior** or during operating hours.

In the Session Room (401)

Each session room will be equipped with screen, LCD projector, computer, sound system, timer and laser pointer. All presentations will be pre-loaded into the computer by technical staff for the session room.

Audio-Visual Equipment

Each session room will be equipped with screen, LCD projector, computer, sound system, timer and laser pointer. All presentations will be pre-loaded into the computer by technical staff for the session room.

During Your Presentation

Each session room will be staffed with technicians who will assist with starting each presentation. Once the presentation is launched, the speaker will control the slides from the podium using a remote control, a computer mouse.

Time your presentation accurately and adhere to your schedule as a courtesy to your colleagues. If your presentation exceeds the time limit you will be requested to stop because this will disrupt scheduling and affect the next speaker's time slot.

- Presentation: 10 minutes in total, including time for Q&A.

Poster Presentation (Hall E)

You should check your presentation time and come at least 10 minutes prior to your scheduled presentation. Poster presenters should be ready in front of their poster 10 minutes prior

Please remove your poster after finishing conference events.

- Installation of poster: 07:00-18:00 on June, 13, 2012
- Place: Hall E

Tour Packages

Following tour packages Gyeongbok Palace Tour, Korean Cultural Insight Tour, D.M.Z (Demilitarized Zone) tour, Special city night tour, Romantic night cruise tour, and Shopping tour are ready for your registration on the information desk. Morning or Afternoon time packages are prepared and please contact Information desk next to registration booth for more details.

- Information Desk: 09:00-17:00 / June, 13-15

To carry out an event such as CAOS would not be possible without the support and contributions by the following companies and organizations. Their help is highly appreciated.

Award Benefactors



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CAOS 2012

Please mark your calendars:



Notes

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