

CAOS ASIA 2009

The 6th Asian Society for Computer Assisted Orthopaedic Surgery

PROGRAM & ABSTRACTS

April 3 - 4, 2009

Osaka, Japan

Welcome Message

Dear Colleagues,

On behalf of the organizing committee, it is a great pleasure for us to welcome you to the 6th CAOS Asia in Osaka, Japan. Since Prof. PS John from India founded CAOS Asia in 2004 with the support of CAOS-International to promote research and discussion on the new field of computer assisted orthopaedic surgery in Asia, the meetings have been successfully held annually (Singapore in 2005, Kaohsiung in 2006, Seoul in 2007, and Hong Kong in 2008). We founded CAOS Japan in 2007 and we are pleased that the third annual meeting of CAOS Japan is held in combination with CAOS Asia. We are confident that CAOS Asia 2009 will fulfill its aim, a rich and fruitful exchange of ideas, information about various new technologies and the formulation of future directions for CAOS.

We also hope that you enjoy Japanese beautiful season of cherry blossoms.

Nobuhiko Sugano, M.D., Ph.D.



Congress Chairman, CAOS Asia 2009

Endowed Chair Professor

Department of Orthopaedic Medical Engineering,

Osaka University Graduate School of Medicine

Organizing Committee

Iwaki, Hiroyoshi (Japan)	Nakamura, Nobuo(Japan)
Enomoto, Hiroyuki (Japan)	Nishii, Takashi (Japan)
Ohashi, Hirotsugu (Japan)	Matsubara, Masaaki (Japan)
Kaneko, Hironori (Japan)	Miura, Hiromasa (Japan)
Sakai, Takashi (Japan)	Miki, Hidenobu (Japan)
Satoh, Takashi (Japan)	Mitani, Shigeru (Japan)
Tatsumi, Ichiro (Japan)	Yanagimoto, Shigeru (Japan)
Tokunaga, Kunihiko (Japan)	

General Information

Dates: Friday, April 3 - Saturday, April 4, 2009

Venue: RIHGA Royal NCB

Address: 6-2-27 Nakanoshima, Kita-ku, Osaka 530-0005, Japan
Phone: +81-6-6443-2251 Facsimile: +81-6-6445-2755

Congress Chairman: Nobuhiko Sugano, M.D., Ph.D.
Endowed Chair Professor, Department of Orthopaedic Medical Engineering,
Osaka University Graduate School of Medicine

Official Language: English No simultaneous interpretation will be provided.

Congress Chairman's Office: Masaki Takao, M.D., Ph.D.
Department of Orthopaedics,
Osaka University Graduate School of Medicine

Registration Desk

The registration desk will be open during the following hours at the congress site.

Friday, April 3 8:00 – 18:00

Saturday, April 4 8:00 – 12:00

Name Badges

All participants are asked to wear their name badges throughout the Congress.

Secretariat

The congress secretariat room is located at the 2nd floor in Room KIKU.

Official Travel Agent

NIPPON TRAVEL AGENCY CO., LTD. is the official travel agent. The address is as below.
JR-West Bldg. 1F, 2-4-24 Shibata, Kita-ku Osaka 530-8341, Japan
Phone: +81-6-6376-6450 Facsimile: +81-6-6376-6465

Social Events

Welcome Reception (Banquet)

Date: Friday, April 3

Time: 18:00 – 20:00

Place: Banquet Room HANA, 3rd floor of RIHGA Royal NCB

Fee: All Researchers and Accompanying Persons are invited to the Banquet.

(Industrial Participants are required to pay 5,000 yen for the Banquet fee.)

Dress: Informal

Guidelines for Presenters

Guidelines for Presenters at Oral Sessions

Presentation Time

7 minutes for presentation and 3 minutes for discussion

PC Preview Center

Audiovisual presentations may be reviewed in the PC Preview Center.

Place: 2nd floor lobby of RIHGA Royal NCB

Date & Time: Friday, April 3 8:00 – 18:00

Saturday, April 4. 8:00 – 14:00

Please bring your data by CD-ROM, USB thumb drive or your own PC. Please prepare back up file.

Equipment for Presentation

Only Windows PC is prepared by the organizer. It will be accepted to use speaker's own PC, too. Those who use Macintosh or the presentation data including an animation should use their own computers.

When you bring your own PC, please prepare your conversion connector.

Only Mini D-sub 15 pin connector female is prepared as RGB output.

Instruction for Presentation Data

Digital projection will be available in the meeting room, and audio visual equipments will not be available.

Windows: PowerPoint 2003/ 2007

We strongly recommend bringing your own PC if your presentation data includes animation.

Please use standard fonts. Fonts can be a problem if nonstandard fonts are used.

Guidelines for Presenters at Poster Sessions

Presentation Time

Poster Presentation: 3 minutes for presentation and 2 minutes for discussion

Posters Session Room

Place: Room MATSU, 2nd floor of RIHGA Royal NCB

Date & Time:

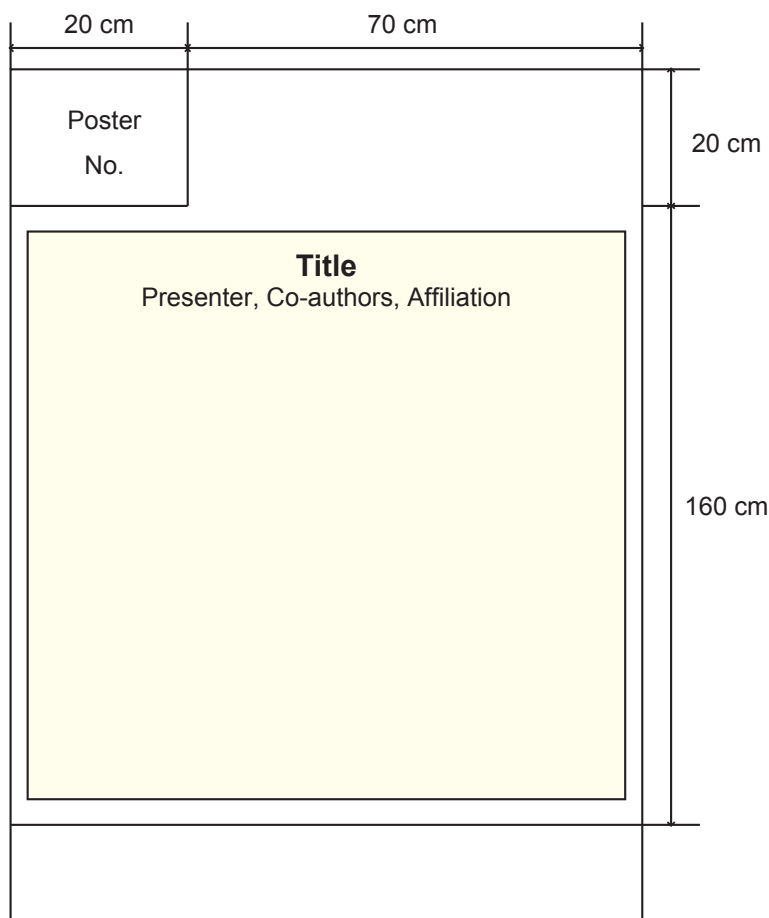
Set-up	Friday, April 3	8:00 – 12:00
Viewing	Friday, April 3	12:00 – 18:00
	Saturday, April 4	8:00 – 14:00
Sessions	Friday, April 3	13:30 – 14:30
Dismantle	Saturday, April 4	14:00 – 14:30

All poster presenters will be near posters for presentation and discussion from 13:30 to 14:30 on Friday, April 3.

Size of the poster board is as below. We recommend A0 size (119 cm X 84 cm) as your poster size.

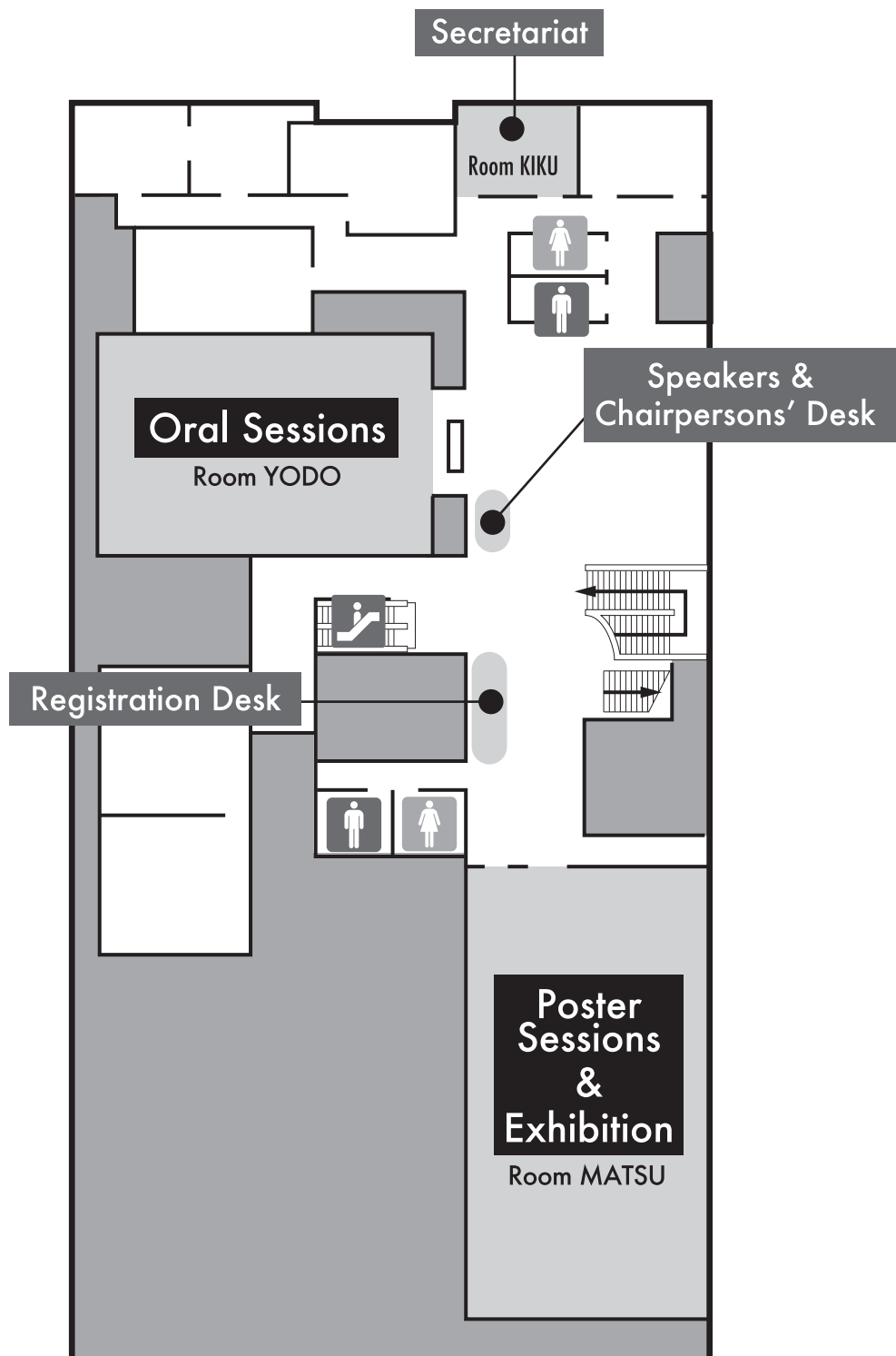
Be sure to include the abstract title (should be emphasized by the use of a bold type face), presenters' name, co-authors' names and their affiliations where the work was completed, in large letters centered at the top of the poster.

Poster No. & push-pins will be provided by the Secretariat.



Floor Map

2F, RIHGA ROYAL NCB



**The 6th Asian Society for Computer Assisted Orthopaedic Surgery
(The 6th CAOS Asia) April 3-4, 2009**

Friday, April 3

Rihga Royal NCB						
	Reception Room Room HANA, 3F	Oral Sessions Room YODO, 2F	Moderator	Poster Sessions Room MATSU, 2F	Moderator	Meeting Room Room KIRI, 3F
07:30						
08:00		8:00 Registration		Poster Set-up & Exhibition		
08:30		8:30 Opening Ceremony	M. Takao			
09:00		8:50-9:10 Special Lecture I (Prof. E.K. Song)	T. Sato			
09:30		9:10-10:10 Session I: TKA-I: Limb Alignment & Ligament Balancing (6 papers)	C.Y. Yang H. Enomoto			
10:00				10:10-10:30 Coffee Break		
10:30		10:30-10:50 Special Lecture II (Prof. N. Confalonieri)	T. Tomita	Poster Set-up & Exhibition		
11:00		10:50-11:40 Session II: TKA-II: Robotics & Technical Innovations (5 papers)	D. K. Bae T. Tomita			
11:30		11:40-12:00 Presidential Guest Lecture (Prof. K.S. Leung)	N. Sugano			
12:00		12:00-13:00 Luncheon Seminar I Speaker Dr. M. Akagi <i>Sponsored by JMM</i>	H. Miura	Poster Viewing & Exhibition		
12:30		13:00-13:10 Invitation to CAOS Asia 2010 in Thailand Speaker T. Chotanaphuti	M. Takao			
13:00						13:00-13:30 Executive Committee Meeting (CAOS Asia)
13:30				13:30-14:00 Poster Session: THA-I Poster Session: TKA	H. Kaneko H. Iwaki	
14:00				14:00-14:30 Poster Session: THA-II Poster Session: THA-III	S. Mitani H. Ohashi	
14:30				14:30-14:50 Workshop I: Stryker		14:30-15:00 Executive Committee Meeting (CAOS Japan)
15:00				14:50-15:10 Workshop II: Biomet		
15:30				15:10-15:30 Workshop III: BrainLab		
16:00		15:50-16:20 Session III: UKA (3 papers)	M.A. Conditt I. Tatsumi	Poster Viewing & Exhibition		
16:30		16:20-17:00 Session IV: HTO & Sports Medicine (4 papers)	E.K. Song P.S. John			
17:00		17:00-18:00 Evening Seminar Speaker Dr. A. B. Mullaji <i>Sponsored by DePuy Companies</i>	T. Tomita			
17:30						
18:00	18:00-20:00					
18:30						
19:00	Welcome Reception (Banquet)					
19:30						
20:00						

Saturday, April 4

Rihga Royal NCB			
	Oral Sessions Room YODO, 2F	Moderator	Poster Sessions Room MATSU, 2F
07:30			
08:00	8:00-9:00 Registration		
08:30	Morning Seminar Speaker Dr. M. Nishiyama <i>Sponsored by TOYO MEDIC</i>	O. Nakai	Poster Viewing & Exhibition
09:00	9:00-10:10		
09:30	Session V: THA 1-Clinical Application (7 papers)	S. Yanagimoto T. Nishi	
10:00			10:10-10:30 Coffee Break
10:30	10:30-11:40		Poster Viewing & Exhibition
11:00	Session VI: THA 2-Coordinate Systems & Technical Innovations (7 papers)	M. Matsubara K. Tokunaga	
11:30	11:40-12:00		
12:00	Special Lecture III (Dr. S. Ebara)	N. Sugano	
12:30	12:00-13:00		
13:00	Luncheon Seminar II Speaker Dr. J.L. Moctezuma	N. Nakamura	
13:30	13:00-13:40		
13:30	Session VII: Trauma & Tumor (4 papers)	T. Murase T. Sakai	
14:00	13:40-13:50 Award Ceremony	M. Takao	
	13:50-14:00 Closing	M. Takao	

Friday, April 3, 2009 Oral Sessions (Room YODO, 2F)

08:30-08:50

Opening Ceremony

Moderator: Masaki Takao

08:50-09:10

Special Lecture I

Moderator: Takashi Sato

SL I Navigation Prediction for Balancing of Soft Tissue & Flexion-Extension GAP in Primary Total Knee Arthroplasty and It's Mid Term Clinical Results

Eun Kyoo Song

09:10-10:10

Oral Session I: TKA-1 Limb Alignment & Ligament Balancing

Moderators: Chyun-Yu Yang

Hiroyuki Enomoto

OP01 Comparative Study between Computer-assisted Navigation and Conventional Technique in Minimally Invasive Surgery Total Knee Arthroplasty , Prospective Control Study

Thanainit Chotaphuti

OP02 Accuracy of Image-free Navigation for Severely Deformed Knees

Minoru Takasaki

OP03 Application of the CT-based Navigation System to the Preoperative Planning and the Simulation of Positioning a Femoral Component in Minimally Invasive Total Knee Arthroplasty.

Hiroyuki Enomoto

OP04 The Limb Alignment in Conventional Total Knee Arthroplasty- Evaluation with Optical Tracking System

Chih-Wei Chang

OP05 Ligament Balance for Varus Knee in Computer Navigation Total Knee Replacement

Peter Wai Pan Yau

OP06 Bone Cutting and Ligament Balancing in CAS Revision Total Knee Arthroplasty

Dae K Bae

10:10-10:30

Coffee Break

10:30-10:50

Special Lecture II

Moderator: Tetsuya Tomita

SL II Computer and Tissue Sparing Surgery in Knee Replacement

Norberto Confalonieri

10:50-11:40

Oral Session II: TKA-2 Robotics & Technical Innovations

Moderators: Dae K Bae

Tetsuya Tomita

OP07 A Novel Technique to Control Femoral Component Alignment by Instrument-related 3D Preoperative Planning System for Total Knee Arthroplasty

Takashi Sato

OP08 Limb Alignment and Position of the Components in Bilateral Total Knee Replacement with Robotic and Conventionally Manual Support

(A Prospective, Randomized Study)

Sang Jin Park

OP09 A New Design of Robot Assisted Planar Bone Resection for Total Knee Replacement

Shuo-Suei Hung

OP10 Knee Range of Motion depending on the Different Femoral Component Design
- In Vivo Evaluation Using Navigation -

Dam Seon Lee

OP11 Development of a Robot System for Less Invasive Arthroplasty

Kazuo Fujiwara

11:40-12:00

Presidential Guest Lecture

Moderator: Nobuhiko Sugano

The Significance of CAOS in Asia

Kwok Sui Leung

12:00-13:00

Luncheon Seminar I (Sponsored by Japan Medical Materials Corporation)

Moderator: Hiromasa Miura

Preoperative TKA Planning with a CT-based Simulation Software “The 3D-Template”: How Do We Get the 3D Information Preoperatively and Use It Intraoperatively?

Masao Akagi

13:00-13:10

Invitation to CAOS Asia 2010 in Thailand

Moderator: Masaki Takao

Speaker: Thanainit Chotanaphuti

13:00-13:30

CAOS Asia Executive Committee Meeting (Room KIRI, 3F)

13:30-14:30

Poster Sessions (Room MATSU, 2F) see Page 11

14:30-15:00

CAOS Japan Executive Committee Meeting (Room KIRI, 3F)

14:30-14:50

Workshop 1: Demonstration of Knee Navigation (Room MATSU, 2F)

Jose Luis Moctezuma de la Barrera (Stryker Instruments)

14:50-15:10

Workshop 2: Signature Knee Guide “Patient-specific Approach in Total Knee Arthroplasty” (Room MATSU, 2F)

Yukari Kito (BIOMET JAPAN, INC.)

15:10-15:30

Workshop 3: The Unlimited Solution - The Latest Navigation Application for Computer Assisted Knee Arthroplasty (Room MATSU, 2F)

Graetz Roland (Brain LAB AG)

Shimomura Keita (Brain LAB KK)

15:30-15:50

Coffee Break

15:50-16:20

Oral Session III: UKA

Moderators: Michael A Conditt

Ichiro Tatsumi

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|------|--|-------------------|
| OP12 | Tibial Undercutting in a Navigation System Designed for Unicompartmental Knee Arthroplasty | Paul S Cullis |
| OP13 | Robotically Assisted UKA is More Accurate than Manually Instrumented UKA | Michael A Conditt |
| OP14 | Clinical Evaluation of “Direct Tunneling Technology” in UKA | Chun Tek Lee |

16:20-17:00

Oral Session IV: HTO&Sports Medicine

Moderators: Eun Kyoo Song

P.S. John

- | | | |
|------|---|----------------|
| OP15 | Preoperative Simulation of Graft attachment Sites for Knee Ligament Reconstruction toward Clinical Application | Yuki Ueyama |
| OP16 | Selective Bundle Augmentation for Isolated Bundle Injury of ACL using Navigation | Nam Young Cho |
| OP17 | Comparison In Vivo Isometricities for the Navigation assisted and Conventional Anterior Cruciate Ligament Reconstruction Techniques | Eun Kyoo Song |
| OP18 | Development of the Program for Assessment of the Grounding Point on the Behind Foot | Hideo Kawakami |

17:00-18:00

Evening Seminar (Sponsored by DePuy Companies)

Moderator: Tetsuya Tomita

Benefits of CT-Free Navigation with Primary & Revision TKA

Arun B. Mullaji

18:00-20:00

Welcome Reception (Room HANA, 3F)

Friday, April 3, 2009 Poster Sessions (Room MATSU, 2F)

Group A

13:30-14:00

Poster Session: THA 1

Moderator: Hironori Kaneko

- PP01 The Accuracy of Spatial Position of the Cup Using CT-based Navigation System in Total Hip Arthroplasty Daiki Iwana
- PP02 Accuracy Evaluation of Placement of Acetabular Component using Fluoro-CT Matching CT-based Navigation and Landmark Matching CT-based Navigation and Free Hand Techniques in MIS-THA -Prospective Randomized Study- Shoichi Nishikino
- PP03 ODUNU-the Optical 2D-3D-Matching CT-based Navigation System for Total Hip Arthroplasty- Mitsuhiro Ikebuchi
- PP04 Computer Tomography Based Navigation Assisted Total Hip Arthroplasty in Patient with Severe Bone Loss in Posterior Acetabular Wall after Rotational Acetabular Osteotomy Hidetoshi Hamada
- PP05 Use of Navigation Improves Precision of Cup Placement in Cemented THA done for Severe Dysplasia Hirosuke Endo

14:00-14:30

Poster Session: THA2

Moderator: Shigeru Mitani

- PP06 The Effects of a CT-based Navigation System on Orientation of Prosthesis in Total Hip Arthroplasty Hidenobu Miki
- PP07 A Comparison Between Robotic-assisted and Manual Implantation of Primary Cementless Total Hip Arthroplasty Femoral Components; Minimum Five Years Results Nobuo Nakamura
- PP08 Evaluation of Acetabular Component Position by using Fluoro-based Navigation System in RevisionTHA -Examination from Installation Location and Angle- Tesshuu Ikawa
- PP09 CT-based Preoperative Planning in Cementless Acetabular Revision Keiji Haraguchi
- PP10 Five-year Follow-up Assessment of the Pelvic Flexion Angle after Total Hip Arthroplasty Shunsaku Nishihara

Group B

13:30-14:00

Poster Session: TKA

Moderator: Hiroyoshi Iwaki

- PP11 Minimally Invasive Computer-assisted Total Knee Arthroplasty Versus Minimally Invasive Jig-based Technique Masahiro Hasegawa
- PP12 Does the Imageless Navigation-Assisted Total Knee Arthroplasty have a Pitfall in Anatomic Variations around Knee ? Kwang-Jun Oh
- PP13 Accuracy of Implant Position in MIS TKA -The role of Navigation- Masakazu Fujii
- PP14 Radiological Results of Total Knee Arthroplasty with a CT-based Computer-assisted Navigation System Takaaki Shibuya
- PP15 3D Kinematic Analysis of Mobile-bearing Total Knee Arthroplasty using X-ray Fluoroscopy Takaharu Yamazaki

14:00-14:30

Poster Session: THA3

Moderator: Hirotugu Ohashi

- PP16 Dynamic Pelvic Flexion Angle after THA among Patients with Pelvic Reclination Kosuke Tsuda

PP17	Comparison of Bony and Prosthetic ROM in Simulation	Ichiro Nakahara
PP18	Atlas-based Automated Size Selection and Positioning of Acetabular Cup for THA	Kazuto Kobayashi
PP19	Easy Simulation Method of Transtrochanteric Rotational Osteotomy for Femoral Head Osteonecrosis using Multi-Planar Reconstruction of MR Images	Tsuyoshi Koyama
PP20	The Influence of Chemical Shift Artifacts on Cartilage T2 Mapping	Toshiyuki Shiomi
PP21	Predictability of Preoperative Planning in Total Hip Arthroplasty using 2D Digital Planning Software	Kentaro Yabuta

08:00-09:00

Morning Seminar (Sponsored by TOYO Medic Co., Ltd.)

Moderator: Osamu Nakai

Clinical Experiences Using The Latest 3D C-Arm with Flat Panel Detector in Spinal Surgery.

Makoto Nishiyama

09:00-10:10

Oral Session V: THA-1 Clinical Application

Moderators: Shigeru Yanagimoto

Takashi Nishii

OP19 CT-fluoro Matching Procedure Improves the Registration in CT-based Navigation THA

Kunihiko Tokunaga

OP20 Evaluation of the Accuracy in Newly Developed CT-based Fluoroscopy Matching Total Hip Navigation System. -Comparison between New System and Land-mark Matching System-

Shigeru Yanagimoto

OP21 The Accuracy of CT-based Fluoroscopy-matching Navigation System in THA:A Comparison of the Anterolateral and Postelateral Approaches

Hironori Kaneko

OP22 The Accuracy of Acetabular Cup Replacement with CT-based Navigation

Yuki Maeda

OP23 Individual Variability for the Registration in Image-free Navigation System for THA -Comparison between Lateral Decubitus Position and Supine Position-

Masanori Matsuura

OP24 Surgical Guide Based on Rapid Prototyping Technique for Cup Insertion in Total Hip Arthroplasty

Takehito Hananouchi

OP25 Clinical Application of CT-based Navigation System for Hip Resurfacing Arthroplasty

Makoto Kitada

10:30-11:40

Oral Session VI: THA-2 Coordinate Systems & Technical Innovations

Moderators: Masaaki Matsubara

Kunihiko Tokunaga

OP26 The Methods of Measuring Leg length Discrepancy -Are conventional methods accurate for severe orthoarthritis patients?

Naoyuki Hirasawa

OP27 Comparison of Pelvic Coordinate Systems using 3D-CT

Masaki Takao

OP28 In Vivo Three-Dimensional Analysis of Passive Hip Flexion after Total Hip Arthroplasty Using X-ray Fluoroscopy

Junichiro Koyanagi

OP29 Evaluation of Bearing Failures in Patients with Total Hip Arthroplasty Using High-resolution Isotropic CT

Takashi Nishii

OP30 AutoImPlan: An Automated System for CT -based THA Planning -Planning Optimization based on Anatomical Compatibility and Jointfunction-

Itaru Otomaru

OP31 AutoImPlan: An Automated System for CT-based THA Planning -Atlas-based Segmentation and Anatomical Feature Localization from 3D CT Images

Futoshi Yokota

OP32 Cement Removal from the Femur using the ROBODOC System in Revision Total Hip Arthroplasty

Mitsuyoshi Yamamura

11:40-12:00

Special Lecture III

Moderator: Nobuhiko Sugano

SL III Computer-assisted spine surgery

Sohei Ebara

12:00-13:00

Luncheon Seminar II

Moderator: Nobuo Nakamura

The Future of Surgical Navigation, A Technological Journey

Jose Luis Moctezuma de la
Barrera

13:00-13:40

Oral Session VII: Trauma&Tumor

Moderators: Tsuyoshi Murase

Takashi Sakai

OP33 Distal Locking Made Easy - Done with a New Navigation Technique with
Minimal Radiological Exposure

Kwok Sui Leung

OP34 Three-dimensional Corrective Osteotomy of Malunited Fractures of the Upper
Extremity Using a Novel Computer Simulation System and a Custom-Designed
Surgical Template.

Tsuyoshi Murase

OP35 Can CT-fluoro Matching be Used in Pelvic Bone Registration for CAOS?

Eric WK Ng

OP36 Computer-Assisted Tumor Surgery (CATS): An Extended Application in CAOS

KC Wong

13:40-13:50

Award Ceremony

Moderator: Masaki Takao