7th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery

Heidelberg, Germany
June 20-23, 2007

Conference Chairman

Paul A. Grützner, M.D.
Katharinenhospital, Stuttgart, Germany

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Leo Joskowicz, Ph.D.
Jerusalem, Israel

Frank Langlotz, Ph.D.
Zofingen, Switzerland

Michael L. Swank, M.D.
Cincinnati, USA

*CME Credits**

We have applied for the approval of credits for Continuing Medical Education.

**last updated May 16, 2007.*

For Information and Registration Please Contact

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Wednesday, June 20, 2007

14:00 Registration

18:00 WELCOME RECEPTION AT THE INDUSTRIAL EXHIBITION

Thursday, June 21, 2007

Session I – Anatomical considerations in CAOS knees

Chairmen: Michael Nogler and Joel M. Bach

8:00 A CT-based analysis of the variation in the rotational reference axes of the distal femur in the non arthritic population
Rajagopal, Nathwani

8:10 How precise is the determination of rotational alignment of the femoral prosthesis in total knee replacement? – An in vivo study
Yau, Chiu, Tang

8:20 Variability of femoral component rotational landmarks during computer-assisted total knee arthroplasty
Franklin, Siliski

8:30 Navigation of knee revision arthroplasty using a system designed for primary surgery
Massin, Biette, Pernin

8:40 Relationship between cutting errors and learning curve in computer assisted total knee replacement
Manzotti, Confalonieri, Motavalli

8:50 Comparison of tibial rotation in fixed and mobile bearing total knee arthroplasty using computer navigation
Stiehl

9:00 Can robotic TKA improve the accuracy of γ and δangles in lateral roentgenography?
Park, Lee

Session II – Soft tissue balancing in navigated knees

Chairmen: Andreas Wentzensen and Neil Glossop

9:10 A quantitative method of effective soft tissue management for varus knees in total knee replacement surgery using navigational techniques
Clarke, Dillon, Deakin, Kinninmonth, Picard

9:20 Intraoprative differences in alignment, resection height, and component sizing when measured by computer cavigation vs. conventional jig based approach
Goding

9:30 Navigation predictors in determining the frequency of soft tissue release in TKA
Hakki, Bilotta, Hakki, Coleman

9:40 Quantitative flexion gap dynamics during computer navigated ligament-guided total knee arthroplasty
Heesterbeek, Keijsers, Jacobs, Verdonschot, Wymenga

9:50 Navigated patella tracking in TKA: influence of mediolateral positioning of the patella
van der Linden - van der Zwaag, de Bruin, Krekel, Nelissen

Break

10:00 COFFEE BREAK AT THE INDUSTRIAL EXHIBITION

Session III – Trauma

Chairmen: David Kahler and Radek Hart

10:30 Navigated reduction and fixation of acetabular fractures
Nakhla, Turner, Rodriguez, Harris, Lewis, Cobb

10:40 Automatic reconstruction of a surface model of the proximal femur from biplanar calibrated fluoroscopic images
Zheng, Dong, Gonzalez Ballester

10:50 Automatic and precise pose recovery of the distal locking holes from single calibrated fluoroscopic X-ray image for computer assisted intramedullary nailing of femoral shaft fractures
Zhang, Zheng

11:00 The development of robotic arm in fluoro-navigation for orthopaedic trauma surgery in the Chinese University of Hong Kong
Leung, Tang, Ng

11:10 Integration of computer-aided navigation and metal detector technology in the removal of shrapnel in terror attacks casualties
Peleg, Harari, Joskowicz, Liebergall, Mosheiff

11:20 Intraoperative 3-D imaging: Clinical consequences in 248 cases
Kendoff, Citak, Stübig, Gösling, Gardner, Hüfner, Krettek

Round Table – CAOS – Is it worth it?

Moderator: Michael L. Swank

11:30 Participants: N.N.

Presidential Guest Lecture I

12:20 Horst Zuse
The origines of the computer

Break

12:50 LUNCH BREAK AT THE INDUSTRIAL EXHIBITION

Poster Session, Part 1

10:30 POSTERS S1-S12 WERE RATED "SPECIAL POSTERS" INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. ALL POSTERS ARE ON DISPLAY FOR THE ENTIRE TIME OF THE MEETING. POSTER AUTHORS WILL BE AVAILABLE AT THEIR POSTERS FOR QUESTIONS DURING THE POSTER SESSION IN WHICH THEIR POSTERS ARE LISTED.

S1) Limb alignment correction using traditional and computer assisted Taylor spatial frame
Slagel, Ellis, Ma, Simpson, St. John, Borschneck

S2) Does a navigation system for ACL replacement realistically predict the length change of tendon grafts?
Dürselen, Weisser, Marin, Seitz, Kowal, Wentzensen, Claes, von Recum

S3) Navigation assisted open wedge high tibial osteotomy – How to prevent unintended increase of posterior slope of proximal tibia
Song, Seon, Park, Cho

S4) CAS for shoulder arthroplasty – Short term results
Hassan, Pascal

S5) Navigation in hip resurfacing: Report of initial results
Swank, Korbee

S6) A real-time automatic ultrasound calibration system with accuracy control for computer assisted orthopaedic surgery
Chen, Thurston, Ellis, Abolmaesumi

S7) Endoscope as a 3D tracker
Thoranaghatte, Nolte, Zheng

S8) A scaled pelvic frame of reference for hip surgery
Dandachli, Richards, Nakhla, Cobb

Special Posters

Special Posters

S9) Accuracy of ultrasound-to-MR registration of the knee
Murtha, Watterson, Nikou, Jaramaz

S10) Volumetric meshes based on medial representation for medical applications
Assassi, Guillard, Gilles, Magnenat-Thalmann

S11) Development of a real-time motion analysis system for patients after total hip arthroplasty
Otake, Suzuki, Hattori, Hidenobu, Yamamura, Yonenobu, Ochi, Sugano

S12) In vivo measurement of dynamic motion patterns of the wrist
Carelsen, Jonges, Strackee, van Kemenade, van Herk, Streekstra

Total Knee Replacement

1) Preliminary results of a prospective randomized study – Fixed vs. mobile bearing computer assisted total knee arthroplasty
Dries, Sufi-Siavach, Lemke, Bohlen, Hille, Lampe

2) Evaluation of rotating platform total knee prosthesis by means of KinNav navigation system
Martelli, Zaffagnini, Iacono, Bignozzi, Lopomo, Casino, Marcacci

3) Alignment of total knee arthroplasty: A comparison of mechanical and computer assisted TKA surgery
Wegner, Cook, Feinglass, Stulberg

4) What is the benefit of navigation in TKA for posttraumatic arthrosis?
Mägerlein, Unger, Schulz, Inden, Fuchs

5) Better alignment and high reliability with CAS in total knee surgery – A prospective randomized study
Wiersma- Tuinstra, Driessen, Bruijn

6) Quality of implant alignment and results in minimally invasive navigated total knee arthroplasty
Bohlen, Dries, Sufi-Siavach, Hille, Lampe

7) Clinical results of navigated MIS quadriceps-sparing total knee arthroplasty
Huang

8) Comparison of mechanical axis measurements: Intraoperative navigation versus postoperative standing films
Smail, Swank, Korbee

9) Use of computer navigation to measure flexion and extension gaps and ligament tension in the cadaveric knee
Wernecke, Plaskos, Anderson, Mayman, Sculco

10) Three dimensional preoperative planning software Athena navigates MIS-TKA
Tatsumi, Hirakawa, Nakasone, Takayanagi

11) 8 to 10 years of follow-up for 26 computer assisted TKA
Saragaglia, Picard, Leitner

12) Development of three-dimensional evaluation system for patello-femoral alignment
Kobayashi, Wakisaka, Kaneko, Oohashi, Nemoto

13) Accuracy and precision in navigated total knee replacement: A pilot study in a treatment center
Dandachli, Dassanayake, Tariq, Silvester, Strachan, Nathwani

14) Sagittal plane alignment of the femoral component in TKA – CAOS vs. manual
Song, Seon, Park, Cho, Yoon

15) A new 2.5D ultrasound system integrated in the OrthoPilot navigation system
Keppler, Bartl, Kozak, Kraus, Gebhard

16) Computer-assisted TKA for severe genu varum deformities – Results for 31 prostheses
Saragaglia, Rubens-Duval, Chaussard

17) Alignment of total knee arthroplasty: Implications for computer assisted TKA surgery
Wegner, Cook, Feinglass, Stulberg

18) Navigational total knee arthroplasty for knee arthritis associated with extra-articular deformities
Hafez, Keast-Butler, Angelini, Schemitsch

19) What is a “normal” knee laxity?
Jenny, Boeri, Ciobanu

Total Knee Replacement

20) Accuracy and benefit from minimal invasive computer-assisted total knee arthroplasty
Biasca

21) Morbidity related to rigid osseous fixation of the reference bodies for kinematics based registration in computer assisted knee arthroplasty
Bhattacharyya, Gerber

22) Measuring alignment of Japanese OA knee with OrthoPilot
Kanesaki, Hieda, Nagata

23) 3D freehand ultrasound-based bone modeling for total knee replacement
Bovio, De Momi, Forlani, Cerveri, Ferrigno, Audrito, Facchini, Dellaca

24) Kinematics and ligamentous stability of passive knees measured pre and post surgical intervention by a novel navigation system
Nadzadi, Ecker, Murphy

25) Restoration of the joint line in computer navigated total knee arthroplasty
Biasca, Catani

26) Leg length change due to total knee arthroplasty
Nadzadi, Ecker, Lang, Murphy

27) Navigation improves accuracy and reproducibility of soft tissue balance in TKA
Stulberg, Yaffe, Koo

28) Lateral milling of bone for total knee arthroplasty using an impedance force controlled hybrid Cartesian knee surgical robot
Yen, Lai

29) Soft-tissue balancing with virtual bone cuts in navigated total knee arthroplasty
Potel, Bousssaton, Javois, Essig

30) Kinematic versus fluoroscopic navigation in knee arthroplasty
Hagena, Röser

31) The mathematical relationship between varus deformity and tourniquet time for computer assisted total knee replacements
Sampath, Voon, Woodhouse`, Bolton, Cosgrove, Sangster, Davies

32) Quality of life after computer assisted total knee arthroplasty using the OrthoPilot system
Peterlein, Fuchs-Winkelmann, Scherf

Trauma

33) Navigated femoral nailing including non-invasive registration of the contralateral intact femur – First clinical applications
Kendoff, Citak, Gösling, Stübig, Krettek, Hüfner

34) Evaluation of the second generation of computer assisted orthopedic fracture reduction
Khoury, Mosheiff, Beyth, Joskowicz, Finkelstein, Liebergall

35) Defining safety margin for percutaneous sacral-iliac screw and acetabular column screws insertion with high resolution CT and 3D navigation surgical planner
Ning, Shing, Kin, Sui

36) Semiautomatic robotic reduction of femoral shaft fractures with 3D visualization
Oszwald, Westphal, Bredow, Goesling, Kendoff, Hüfner, Wahl, Krettek

37) Rotational control by fluoroscopic CAS of diaphyseal fractures of the lower limbs
Castelli, Barbieri, Gotti, Pelis, Argnani

38) Electromagnetic tracking for navigation in computer assisted distal locking for intramedullary nailing of the femur: A feasibility study
Beadon, Stanley, Guy, O'Brien, Hodgson

39) Intraoperative 3D navigation in orthopaedic trauma surgery
Ning, Shing, Kin, Sui

40) New imaging protocol for fluoro-navigation surgery in pelvi-acetabular fractures
Leung, Wang, Ng, Tang

41) Navigated scaphoid screw insertion
Hüfner, Kendoff, Gaulke, Citak, Krettek, Citak

42) Computer navigation allows for accurate reduction of femoral fractures
Weil, Gardner, Helfet, Pearle

43) Fluoroscopy based computer assistance used for reduction and internal fixation of long bone fractures
Hart, Kozák, de Cordeiro, Filan

44) Improved therapy of os calcis fractures by intraoperative recognition of incongruity using 3D fluoroscopy
Unger, Schulz, Simon, Paech, Queitsch

45) Case reports of robot assisted intertrochanteric fracture reduction
Maeda, Sugano, Saito, Yonenobu, Nakajima, Warisawa, Mitsuishi

46) Automated fracture table for reduction of long bone fractures in the lower limb
Hung, Lee, Yang, Fang

47) Fluoro-navigation surgery in orthopaedic trauma – A summary of clinical results and critical review
Leung

48) Trauma surgery of the extremities: The difference between what the surgeon thinks and intraoperative 3D-RX shows
Haverlag, Carelsen, Luitse, van Kemenade, Streekstra, Goslings

49) 3D visualized robotic reductions of intertrochanteric fractures
Goesling, Oszwald, Westphal, Kuepper, Hüfner, Kendoff, Wahl, Chrettek

50) A solution for 3D jigsaw puzzle of fractured bones: Feasibility and preliminary experiments
Moghari, Abolmaesumi

51) For percutaneous screws fixation of fractures of acetabular columns using navigation system: A cadaver model
Wang, Wu, Tang, Zhao, Su, Wang, Leung

52) A comparison of image quality between Siemens Iso-C^{3D} and Ziehm Vario 3D imaging systems
Stübig, Kendoff, Khalafi, Citak, Krettek, Hüfner

53) Computer aided patient specific quantitative preoperative planning in a clinical environment:
Peleg, Mosheiff, Joskowicz, Gefen, Liebergall

54) CT (Iso-C^{3D}) image based computer assisted navigation in trauma surgery: A preliminary report
Atesok, Finkelstein, Khoury, Liebergall, Mosheiff

55) Intraoperative 3D imaging using an isocentric mobile C-arm with flatpanel detector
Heining, Riquarts, Schmidgunst, Euler, Mutschler

56) Higher precision using a navigated mechanical aiming device for SI screw placement – An experimental analysis
Geerling, Meisenburg, Citak, Kendoff, Stübig, Krettek, Hüfner

57) Hand surgery with intraoperative 3D-RX imaging
Strackee, Carelsen, van Kemenade, Streekstra

58) Reliability and reproducibility of a simplified leg length measurement algorithm in total hip arthroplasty
Murphy, Ecker, Tuma, Haimerl

59) Robo-Navi-MIS-THA
Sugano, Nakamura, Yamamura, Iwana, Kakimoto, Nishii, Hananouchi, Sakai

60) The Imperial hip protocol: An optimized very low dose ct protocol for planning and measuring outcome
Henckel, Richards, Lozhkin, Rodriguez y Baena, Davies, Cobb

61) Navigated control of the cup orientation during total hip replacement
Jenny, Dosch, Boeri, Uscatu

62) Acetabular component positioning in minimally invasive total hip arthroplasty: Comparison of conventional and image-free computer assisted assessment
Stiehl, Heck

63) The use of computerized range of motion simulations to demonstrate the need for improved accuracy in acetabular cup placement in total hip arthroplasty
Thornberry, Nelson

64) Use of transverse acetabular ligament for acetabular cup placement in computer assisted total hip replacement
Swank, Alkire, Korbee, Jon

65) Differential accuracy of various image-based methods in computer assisted surgery for cup placement in supine two-incision total hip arthroplasty
Dayton, Mejia, Baldini, Peacher, Williams, Bach

66) Combination of CT-based navigation and ROBODOC in primary cementless total hip arthroplasty: Effect of limb-length equalization
Nakamura, Sugano, Nishii, Hananouchi, Yoshikawa, Kakimoto, Yamamura, Iwana

67) A fast method for finding maximum range of motion in the hip joint
Arbabi, Boulic, Thalmann

68) Novel method for intra-operative computation of the femoral neck anteversion angle
De Momi, Cerveri, Gambaretto, Audrito, Facchini, Ferrigno

69) 3D evaluation of the acetabular coverage assessed by biplanar X-rays compared with CT-scan
Humbert, Carlioz, Baudoin, Skalli, Mitton

70) Fluoro-based navigation system significantly improved cup orientation in total hip arthroplasty
Ikebuchi, Iwaki, Tokuhara, Iwakiri, Oota, Minoda, Takaoka

71) The evolution of the interface of the uncemented femoral stem – A CT based analysis
Cobb, Kannan, Richards, Nakhla

72) Treatment of massive acetabular defects with excessive bone loss: From automated computer based reconstruction proposal to biomechanically justified defect-filling triflange cup implant
Gelaude, Broos, Mulier, Vandenbroucke, Kruth, Lauwers, Vander Sloten

73) Which plan of reference for PTH navigation?
Judet

74) Assessing THR outcomes using 3D/3D registrations
Eckman, Davidson, Archbold, Slomczykowski, Beverland, Jaramaz

75) Bay Pines experience with the first 50 navigated Excia hips
Hakki, Bilotta, Zilioli, Hakki

Educational Workshops

15:20 COFFEE BREAK

Workshop 1 – **Resurfacing Hip "ReCap" with Navigation** *(Truebner Room, 3rd Floor)*
Sponsored by Biomet

Workshop 2 – **TKA-Navigation with MicroPlasty Approach** *(Ausstellungs Room, 3rd Floor)*
Sponsored by Biomet

Workshop 3 – **Computer Assisted Surgery on the Pelvis** *(Ballroom, 2nd Floor)*
Sponsored by BrainLAB

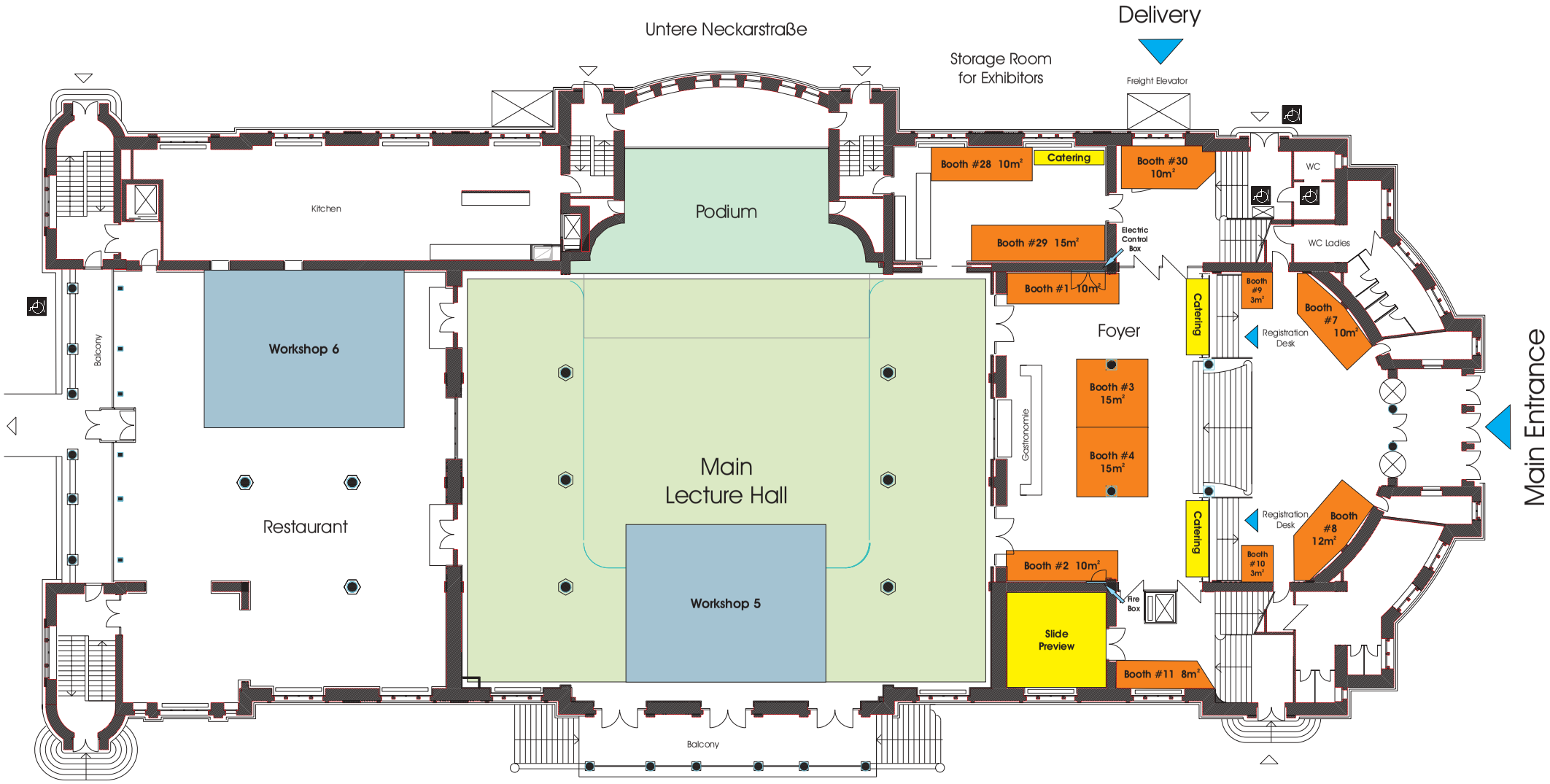
Workshop 4 – **Computer Assisted Surgery in Hip Resurfacing** *(Hölderlin Room, 2nd Floor)*
Sponsored by BrainLAB

Workshop 5 – **Ci™ Hip Software with the Transverse Acetabular Ligament as Additional Reference for Cup Placement** *(Main Lecture Hall, 1st Floor)*
Sponsored by DePuy iOrthopaedics

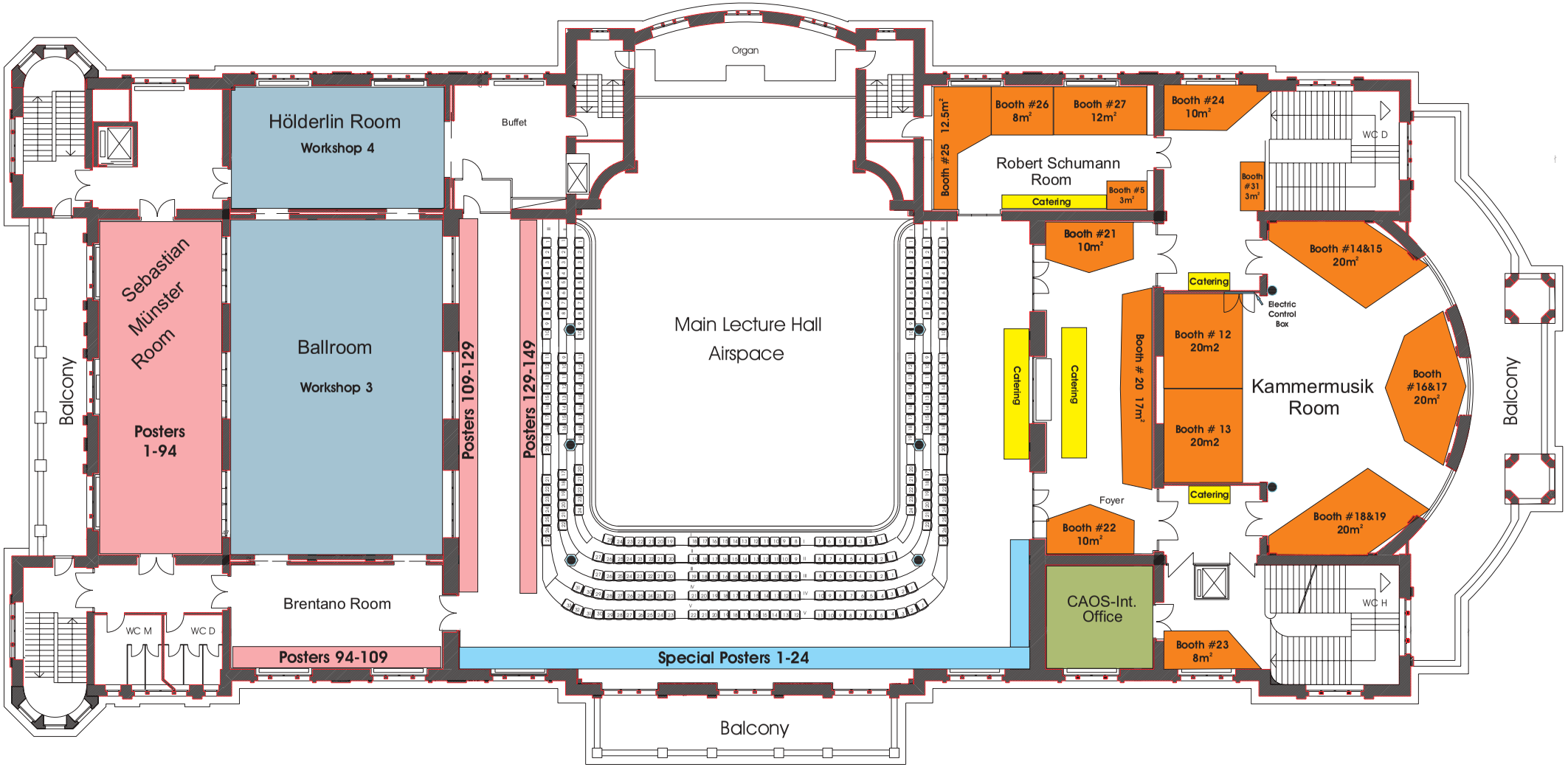
Workshop 6 – **Navigated Total Hip Replacement with the Support of Ultrasound** *(Restaurant, 1st Floor)*
Sponsored by Plus Orthopedics

18:30 END OF DAY 1

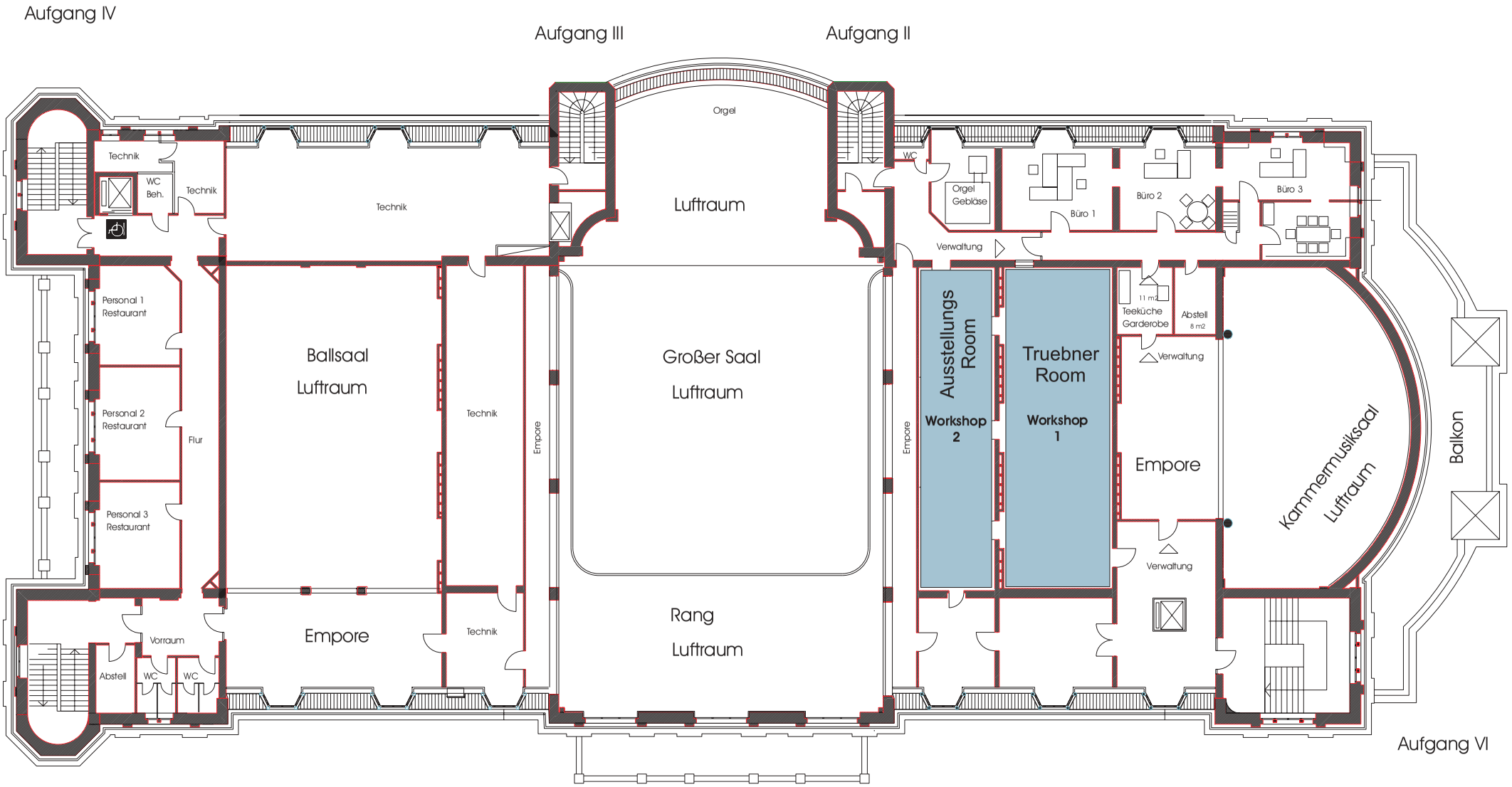
First Floor


Untere Neckarstraße
Delivery
Storage Room for Exhibitors
Freight Elevator
Kitchen
Podium
Booth #28 10m²
Catering
Booth #30 10m²
WC
WC Ladies
Booth #29 15m²
Electric Control Box
Booth #1 10m²
Booth #9 3m²
Booth #7 10m²
Balcony
Workshop 6
Foyer
Catering
Registration Desk
Booth #3 15m²
Booth #4 15m²
Gastronomie
Main Lecture Hall
Restaurant
Workshop 5
Booth #2 10m²
Fire Box
Slide Preview
Booth #11 8m²
Booth #10 3m²
Booth #8 12m²
Main Entrance
Balcony

Second Floor



Third Floor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Büro 3
Verwaltung
Personal 1 Restaurant
Personal 2 Restaurant
Personal 3 Restaurant
Flur
Ballsaal Luftraum
Technik
Empore
Großer Saal Luftraum
Empore
Ausstellungs Room
Workshop 2
Truebner Room
Workshop 1
11 m2
Teeküche Garderobe
Abstell 8 m2
Verwaltung
Empore
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Kammermusiksaal Luftraum
Balkon
Vorraum
Abstell
WC
WC
Empore
Technik
Rang Luftraum
Aufgang VI

CAOS 2007 Exhibitors

Exhibition Booth	Floor	Exhibitor
1	1st	Siemens Medical Solutions
2	1st	Corin
3	1st	BrainLAB
4	1st	BrainLAB
5	2nd	San-Tech Surgical
7	1st	NDI Europe
8	1st	Amplitude
9	1st	Informa
10	1st	Reichert Medical Bookseller
11	1st	Trumpf Kreuzer Medical Systems
12	2nd	Stryker
13	2nd	OrthoMIT Research Network
14	2nd	Axios 3D Services
15	2nd	Plus Orthopedics
16	2nd	B. Braun Aesculap
17	2nd	B. Braun Aesculap
18	2nd	DePuy
19	2nd	DePuy
20	2nd	Smith & Nephew
21	2nd	Biomet Europe
22	2nd	Praxim Medivision
23	2nd	Orthocrat Ltd.
24	2nd	Claron Technology
25	2nd	Orthosoft
26	2nd	ZESS Research – University of Siegen
27	2nd	Co-Me Research Network
28	1st	CAS Innovations / Ziehm Imaging
29	1st	Medtronic
30	1st	Philips Medical Systems
31	1st	Atracsys

Friday, June 22, 2007

Session IV – Total Hip Replacement

Chairmen: André Bauer and Willi Kalender

8:00 Why perform total hip arthroplasty using surgical navigation?
Murphy, Ecker, Tannast

8:10 Ultrasound based versus pointer palpation method in THA Navigation – A comparative pilot study
Kiefer

8:20 Anatomical landmarks used for patient specific cup placement: Concept validation using contrast-enhanced MRI imaging
Slomczykowski, Archbold, Crone, Eckman, Jaramaz, Beverland

8:30 The experience of new CT based fluoroscopy matching hip navigation system
Yanagimoto, Kaneko, Fujita, Funayama, Nishiwaki, Hotta, Toyama

8:40 The clinical precision of acetabular cup position after CT based navigation assisted THA using VectorVision Hip for Japanese patients
Tokunaga, Miyasaka, Takano, Endo

8:50 Computer assisted total hip replacement with modular neck component
Merloz, Eid, Dumas, Rossi

9:00 Comparison of a mini-posterior approach and a direct anterior approach on the accuracy of cup orientation using a CT-based navigation system
Hananouchi, Sugano, Nishii, Sakai, Iwana, Miki

Session V – Aspects of Hip Joint Treatment

Chairmen: Martin Krismer and Manuela Kunz

9:10 Arthroscopic percutaneous computer assisted FAI relief using a new method of CT-fluoro registration
Murphy, Ecker, Tuma, Haimerl

9:20 Computer assisted correction of radiographic parameters on pelvic X-rays with Hip^{2}Norm: Reliable and validated
Tannast, Mistry, Steppacher, Zheng, Langlotz, Siebenrock

9:30 Navigation for arthroscopic correction of the femoral offset – Improvement or impediment?
Staehelin, Haimerl, Staehelin, Herzog

9:40 Patient-specific variability and accuracy of hip abduction/anteversion angular measurements
Lubovsky, Khoury, Peleg, Joskowicz, Liebergall

9:50 Obtaining the functional pelvic flexion using 2.5D echography
Dardenne, Dusseau, Stindel, Hamitouche, Lefevre, Roux

Break

10:00 COFFEE BREAK AT THE INDUSTRIAL EXHIBITION

Session VI – Imaging, Tracking, and Robotics

Chairmen: Kwok-Sui Leung and Moshe Shoham

10:30 A method for evaluating the accuracy and sensitivity of electro-magnetic tracking
Göggelmann, Schwering

10:40 A comparative analysis of the torque stability of reference marker systems in computer aided orthopaedic surgery
Citak, Board, Kendoff, Sun, Krettek, Hüfner

10:50 A new technique for 3D anatomically based patella tracking in navigated total knee replacement
Belvedere, Leardini, Catani, De Deo, Giannini

11:00 Path planning with collision avoidance for 5-DOF robotic removal of femoral bone cement in RTHR
Serefoglou, de la Fuente, Radermacher

11:10 Free isocentric imaging and intraoperative tomographic reconstruction with a standard C-arm
Tita, Lueth

Session VII – Registration

Chairmen: Frédéric Picard and Miguel A. Gonzalez

11:20 A rapid registration technique improves repeatability of guide-pin positioning in femoral head resurfacing arthroplasty
Hodgson, Helmy, Masri, Greidanus, Inkpen, Duncan, Garbuz, Anglin

11:30 A bounded registration method for minimally invasive registration of the femur
Rodriguez y Baena, Barrett, Harris, Henckel, Jakopec, Gomes, Cobb, Davies

11:40 Kalman filtering for ultrasound based rigid registration in CAOS
Talib, Peterhans, García, Styner, González Ballester

11:50 Registration of intraoperative 3D ultrasound with preoperative MRI data for navigated surgery – First results at the knee
Dekomien, Hold, Hensel, Schmitz, Winter

Presidential Guest Lecture II

12:00 Siegfried Russwurm
Impact of IT on modern healthcare delivery

Break

12:30 LUNCH BREAK AND GENERAL ASSEMBLY OF CAOS-INTERNATIONAL

Session VIII – Clinical Outcomes of Navigated Knees

Chairmen: Kamal Deep and Sandra Martelli

14:00 Computer assisted TKA versus the Conventional Technique: Results of 1000 cases
Bäthis, Tingart, Lüring, Beckmann, Grifka, Perlick

14:10 Computer navigation in TKR: A comparison of CT based, CT free and conventional surgery using alignment, clinical outcome, and RSA
van Strien, van der Linden, Valstar, Nelissen

14:20 Two-year follow up on joint function and patients satisfaction comparing computer assisted vs. freehand TKR
Lüring, Perlick, Bäthis, Oczipka, Grifka

14:30 Minimally invasive computer assisted TKA through mini subvastus and mini midvastus approaches
Zanasi

14:40 Computer assisted, minimally invasive versus conventional knee arthroplasty: A prospective, randomized study
Ng, Dutton, Yeo, Chia, Chong

14:50 Implant alignment and quality of life following computer assisted total knee arthroplasty: A prospective comparative randomized multicenter study
Roy, Poulin, Amiot

15:00 5-year results after using the robot system "CASPAR" for total knee arthroplasty
Mai, Ahmadian, Lörke, Siebert

Poster Session, Part 2

10:30 COFFEE BREAK AND POSTER PRESENTATIONS
POSTERS S13-S24 WERE RATED "SPECIAL POSTERS" INDICATING AN EXCEPTIONAL QUALITY OF THIS WORK. ALL POSTERS ARE ON DISPLAY FOR THE ENTIRE TIME OF THE MEETING. POSTER AUTHORS WILL BE AVAILABLE AT THEIR POSTERS FOR QUESTIONS DURING THE POSTER SESSION IN WHICH THEIR POSTERS ARE LISTED

Special Posters

S13) Clustering of deformation modes for quantitative evaluation of statistical shape models
Reyes, Gonzalez Ballester

S14) Fluoroscopy based 3D kinematic analysis of the spine based on a priori knowledge and motion constraints
Thistlethwaite, Ferguson

S15) Improving functional orientation measurements using 2D/3D registration
Eckman, Davidson, Slomczykowski, Beverland, Jaramaz

S16) Image based RSA: Roentgen stereophotogrammetric analysis based on 2D/3D image registration
de Bruin, Kaptein, Rozing, Valstar

S17) Evaluation of noninvasive referencing for navigated ultrasound registration in pre-, intra-, and postoperative procedures
Kozak, Mairaj, Krupakaran, Keppler

S18) Error evaluation of an electro-magnetic tracking system
Elfring, Klein, Radermacher

S19) Accuracy and reliability of limb alignment control using surgical navigation during total knee arthroplasty
Murphy, Ecker

S20) Comparison of optical and electromagnetic tracking protocols in total knee arthroplasty
Stiehl

S21) Blood loss following total knee arthroplasty is reduced when using computer assisted versus standard methods
McConnell, Dillon, Kinninmonth, Sarungi, Picard

S22) Assessment of dynamic total knee arthroplasty function by two different surgical techniques (computer assisted and traditional instrumentation) using gait analysis
Dillon,Cclarke, Nnicol, Picard, Gregori, Kinninmonth

S23) Navigated patella tracking in TKA: Influence of rotation of the femoral component
van der Linden - van der Zwaag, de Bruin, Nelissen

S24) A new technique for 3D anatomical-based assessments on knee soft tissue orientation and lengthening in navigated total knee arthroplasty
Belvedere, Leardini, Catani, Ensini, Giannini

THR

76) Surveillance strategy following total hip arthroplasty: A CAOS based protocol
Kannan, Richards, Cobb

77) Determination of polyethylene wear in total hip arthroplasties with use of OCULA-GAWDI
Ikebuchi, Nakajima, Tatsumi, Ikawa, Iwakiri, Minoda, Iwaki, Takaoka

Aspects of Hip Treatment

78) Computer assisted core decompression of early hip osteonecrosis by using fusion images from Iso-C^{3D} fluoroscopy and preoperative MRI and navigated endoscopic analysis of bone core tract
Wong, Kumta, Griffith, Leung, Ng, Lee, Cheung

79) Etiology of osteoarthritits of the hip joint – Pathomorphologic findings and prearthrotic deformities
Ecker, Tannast, Puls, Siebenrock, Murphy

80) Assessment of joint contact areas using a CT based distance criterion: Cross-validation with a cadaver study
Bartels, Bertrand, Gelaude, Moens, Fabry, Van der Perre, Vander Sloten

81) CO_2 laser system for osteotomy
Werner, Ivanenko, Steigerwald, Klasing, Harbecke, Wagner, Hering

82) Video tracking based navigation system for ACL reconstruction
Sun, Hu, Liu, Wang, Hu, Feng, Wang, Wang

83) Non-photorealistic rendering of virtual implant models for computer assisted fluoroscopy based surgical procedures
Zheng, Nolte

84) Development and evaluation of a new HCI-device for CAOS
Kanert, Ibach, Radermacher

85) Statistical finite element analysis for bone and implant modeling
Belenguer Querol, Büchler, Reimers, Rueckert, Nolte, González Ballester

86) Development of a pelvic coordinate system for use with surgical navigation
Lewandowski, Bach

87) In vivo measurement of knee joint forces – A review of criteria and techniques
Schmidt, Mumme, Radermacher

88) Computer assisted manipulator and motor controlled device for microsurgery
Gotani

89) Distal radius and K-wire localization in 3D ultrasound using local phase information
Hacihaliloglu, Abugharbieh, Hodgson, Rohling, OBrien, Guy

90) Automatic X-ray to anatomy registration: Proof of concept, sensitivity analysis, and validation/verification results
Slomczykowski, Nofrini

91) Ultrasounds registration of the anterior pelvic plane (APP): Comparison with X-ray and OrthoPilot palpation measurements
Mainard, Valentin, Galois, Gasnier, Mollard

92) Comparison of the accuracy of sonography based pelvis' bone landmark determination
Overhoff, Sandkühler, Schwägli

93) Workspace-to-volume ratio of novel robot kinematics for orthopaedic interventions on bone
Pott, Schwarz

94) Incremental ultrasound registration
Watterson, Murtha, Nikou, Jaramaz

95) Evaluation of the draft ASTM CAOS standard
Bach, Barrera, Kazanzides, Haider

96) A registration uncertainty visualization method
Simpson, Ma, Chen, Ellis, Stewart

97) Design concept evaluation of a modular and flexible mini-robot for orthopaedic surgery
Niggemeyer, Schröder, Radermacher

98) Segmentation of blood vessels in 3D ultrasound datasets by a model based region growing algorithm
Hold, Hensel, Winter, Dekomien, Schmitz

99) Navigation with fused preoperative CT/MRI and intraoperative 3D fluoroscopy – Introduction to a new navigation technique and the clinical applications
Ning, Shing, Kin, Sui

100) Ultra-fast dynamic surface imaging using holographic topometry
Hirsch, Thelen, Gisbert, Heintz, Schwenzer-Zimmerer, Hering

101) Mechanical weight bearing simulation – Influence on navigated lower limb axis measurements
Kendoff, Board, Citak, Ostermeier, Hankemeier, Gardner, Krettek

102) Industrial standards in surgical robotics
Schröder, de la Fuente Klein, Niggemeyer, Radermacher

103) First clinical experiences with a new advanced tracking device in navigated total knee and total hip replacement
Mattes, Ostertag, Decking, Reichel

104) Progressive usability assessment for the development of complex OR components
Lauer, Janss, Radermacher

105) Electromagnetic vs. infrared surgical navigation systems for TKA: Comparison of accuracy bench study
Lionberger, Conditt, Stevens, Noble

106) Approach towards transparent network communication for tracking systems
Ibach, Kanert, Radermacher

107) Experiments on bone drilling control with a robot arm for computer integrated surgery
Fraile, Perez-Turiel, Gonzalez-Sanchez, Lopez-Cruzado, Rodriguez

108) Inter- and intra-surgeon variability in defining anatomical reference frames in navigated total knee surgery
Belvedere, Leardini, Catani, Bianchi, Giannini

109) MERODA – The medical robotics database
Pott, Döbel, Schoppmann, Schwarz

110) Graphical interface for virtual surgery planning
SwiatekNnajwer, Krowicki, Keppler, Kozak, Krysztoforski

111) In vivo cartilage thickness measurement by computer assisted 3D MRI models of the knee
Park

112) Soft tissue imaging using a mobile CBCT scanner with a flat panel detector
Heiland, Blessmann, Blake, Schmelzle, Pohlenz

113) The development of a surgeon directed user interaction for CAS
Bartelme, Burger, Mathys, Voelkel

114) Bone reconstruction based on sonography and data acquired from tracking system
Krowicki, Swiatek-Najwer, Keppler, Kozak, Krysztoforski

115) In vitro evaluation of freehand navigated bone cement removal using a mechanical supporting device
de la Fuente, Niggemeyer, Mumme, Rode, Radermacher

116) The use of a head mounted, monocular monitor during orthopaedic intraoperative, fluoroscopy examination
Ortega, Wolff, Baumgaertner, Starr, Kendoff

117) Multimodal graphical interface for total knee and hip arthroplasty
Cerveri, Gambaretto, De Momi, Ferrigno

118) Study of the cadaver knee axial rotation using a dedicated navigation system
Massin, Kilian, Biette, Pernin, Schmes

119) Navigation reduces the learning curve in hip resurfacing
Kannan, Brust, Thevendran, Cobb

120) Reporting accuracy in hip resurfacing: A 3D CT based method
Henckel, Richards, Rodriguez y Baena, Kannan, Cobb

121) Do different surgical approaches influence the precision of image-free and CT guided computer assisted hip resurfacing systems?
Kunz, Ma, Huang, Rudan, Ellis

122) First experience in computer assisted articular surface replacement of the hip with Ci-software (DePuy ASR system)
Koot, Biezen, Leeuwen, Dekkers, Reijman, Vissers, Verhaar

123) MIS unicompartmental knee arthroplasty and kinematic navigation
Pink, Janecek, Pink, Stoklas

Spine

124) Skin marker based referencing for spinal dorsal interventions – A feasibility study
Ebert, Wendl, Grützner, Nolte, Kowal

125) 5-year experience with navigation in intraoperative 3D datasets in orthopedic surgery
Wendl, von Recum, Wentzensen, Grützner

126) Minimally invasive spine surgery using the X-tube and SEXTANT system with Iso-C navigation
Sato, Ando, Inoh, Nakashima

127) Iso-C-based navigated placement of dens screws – Experimental analysis of drilling precision
Geerling, Frenzel, Kendoff, Citak, Partenheimer, Krettek, Hüfner

128) Clinical accuracy of pedicle screw insertion with the Stryker CT based navigation system using cableless active LED markers
Laine, Lohman, Lund, Lohikoski, Österman, Schlenzka

Reconstructive Procedures

129) Evaluation of an optimization module for single and double cut oblique osteotomy based correction of deformed long bone
Belei, Schkommodau, Frenkel, Mumme, Radermacher

130) PET-CT for navigation in cases of chronic osteitis? An experimental investigation
Militz, Linke, Uhde, Christian

131) Monitoring of the upper part of the tibia during navigated HTO is of high interest
Stindel, Cotonea, Dubrana, Lefevre

132) Assessment of distal radius osteotomy plans using digitally reconstructed radiographs
Ma, Athiviraham, Huang, Slagel, Luenam, Pichora

133) IKDC categorical scores vs. navigation based evaluations
Murtha, Steckel, Moody, Costic, Davidson, Burns, Fu, Jaramaz

134) The influence of lateral plasty in single bundle hamstring technique – An in vivo study
Bignozzi, Zaffagnini, Lopomo, Iacono, Martelli, Lo Presti, Marcacci

135) Quality control and CAOS stress radiography in anterior cruciate ligament reconstruction
Klos, Banks

136) High tibial ostetotomy by CAS: Method's presentation, results, and critical evaluation
Castelli, Cobelli, Barbieri, Gotti

137) Imageless navigated high tibial osteotomy in closing-wedge technique treating knees with varus gonarthrosis
Baur

138) Limb rotation in navigated alignment analysis: Implications for high tibial osteotomies
Kendoff, Citak, Pearle, Gardner, Hankemeier, Krettek, Hüfner

139) Tumor resection within the pelvis: Accuracy study of the conventional surgical technique
Cartiaux, Docquier, Paul, Banse, Delloye, Cornu, Raucent

140) Comparison of navigated ACL graft isometry and obliquity in native ACL vs. ACL reconstructions
Pearle, Shannon, Granchi, Moreau-Gaudry, Warren

141) Computer navigated ACL graft obliquity and isometry
Pearle, Shannon, Granchi, Moreau-Gaudry, Warren, Wickiewicz

142) Musculoskeletal tumor surgical planning and simulation in a stereoscopic three-dimensional virtual reality environment
Wong, Kumta, Antonio, Griffith, Leung

143) ACL-reconstruction: The influence of computer assisted surgery on kinematics – A cadaver study
von Recum, Weisser, Seitz, Marin, Kowal, Claes, Wentzensen, Dürselen

144) Arthroscopy assisted computer aided medial open wedge high tibial osteotomy for varus knee deformity
Lo, Cheung, Yung, Chiu

Shoulder

145) Range of motion simulation for shoulder arthroplasty
Krekel, Botha, Post, Valstar, de Bruin, Rozing

146) Applying 3D ultrasound for planning the navigated implantation of shoulder endoprostheses
von Jan, Sandkühler, Rühmann, Overhoff

147) 4D visualization of the musculoskeletal system demonstrated for human upper arm musculature
Kober, Gallo, Helwig, Sader, Zeilhofer

148) Bony landmark registration for computer navigation of the shoulder: Evaluation of accuracy
de Bruin, Krekel, Rozing, Valstar

149) Validation of Intra-operative registration for computer-assisted shoulder arthroscopy: Preliminary cadaver experiments
Beek, Abolmaesumi, Tyryshkin, Huang, Mousavi, Pichora

Session IX – Total Hip Resurfacing

Chairmen: Mahmoud Hafez and Wafa Skalli

16:40 Computer assisted femoral component placement in resurfacing arthroplasty
Hart, Šváb, Filan, deCordeiro

16:50 Multicenter evaluation of Recap KS implantation device and its validation using the computer aided navigation
Singhal, Phadnis, Whitwell, Delport

17:00 Computer aided hip resurfacing using rapid prototyping
Kunz, Rudan, Ellis

17:10 Computer assisted hip resurfacing arthroplasty: Early clinical results of a two arm navigation system
Cobb, Kannan, Thevendran

17:20 Computer assisted hip resurfacing surgery using the Acrobot® navigation system
Barrett, Davies, Harris, Henckel, Jakopec, Kannan, Rodriguez y Baena, Cobb

CAOS-International Banquet

19:30 Walk to the cable-car station, transfer to Heidelberg Castle
Presentation of the Maurice E. Müller Award for Excellence in Computer Assisted Surgery
Introduction of the new CAOS-International President
Invitation to the 8th Annual Meeting of CAOS-International in Hong Kong

23:30 END OF DAY 2

Saturday, June 23, 2007

Session X – Unicompartmental Knees

Chairmen: Fabio Catani and Stéphane Lavallée

8:00 Computer assisted FluoroGuide surgical navigation – A prospective radiographic review with the minimally invasive Oxford unicompartmental knee arthroplasty
Rudan, Chakravertty, Ma, Watson, Grant

8:10 Comparison of minimally invasive unicondylar knee arthroplasty with or without a navigation system
Song, Seon, Park, Cho, Yoon

8:20 MIS & CAS in knee replacement: Bi-unicompartmental (bi-UKR) vs. total knee (TKR) – A matched pairs study
Confalonieri, Manzotti, Motavalli

8:30 Application of Kin-Nav system for in vivo kinematic evaluations during unicompartmental knee reconstruction
Martelli, Zaffagnini, Iacono, Bignozzi, Lopomo, Casino, Marcacci

8:40 Accuracy provides enduring functional improvement in arthroplasty:18 months results of robotic assisted unicompartmental knee replacement
Cobb, Henckel, Brust, Rodriguez-y-Baena, Harris, Jacopec, Barret, Davies

Session XI – Spine

Chairmen: Dietrich Schlenzka and Lutz Claes

8:50 Finite element simulation as a help for lumbar spine surgery planning
Mosnier, Lafage, Skalli

9:00 Accuracy of intraoperative isocentric C-arm 3D fluoroscopy for sextant percutaneous pedicle screw placement
Nakashima, Satou, Ando, Inoh

9:10 Intraoperative CT with integrated navigation system
Scheder, Morhard, Heigl, Uhl, Tonn, Zausinger

9:20 Navigated kyphoplasty in osteoporotic vertebral fractures
Oberst, Izadpanah, Konrad, Doser, Südkamp

9:30 Experimental flow characterization of PMMA bone cement in an artificial vertebra model
Löffel, Kowal, Nolte

9:40 SpineAssist® in the placement of lumbar pedicle screws
Schmieder, Pechlivanis, Engelhardt, Kiriyanthan, Harders

9:50 Fiducial-free endoscopic vertebra referencing
Wengert, Cattin, Baur, Duff, Székely

Break

10:00 COFFEE BREAK AT THE INDUSTRIAL EXHIBITION

Session XII – Reconstructive Procedures

Chairmen: Philippe Merloz and Markus Schwarz

10:30 Atlas based semi-automatic segmentation of MRI data
Jaramaz, Watterson, Murtha, Mor, Nikou

10:40 Better tunnel isometry in computer assisted navigated ACL reconstruction (OrthoPilot) compared to traditional instruments. A cadaver study on 36 paired knees
Angelini, Albuquerque, Hernandez, Camanho

10:50 Measuring the positioning of an ACL replacement with a navigation system – X-ray and CT measurements
Jenny, Ciobanu, Boeri

11:00 Computer assisted surgery in musculoskeletal bone tumor using CT based navigation spine system
Wong, Kumta, Leung, Unwin, Cheung, Ng, Lee

11:10 A new method for bone allograft selection
Paul, Docquier, Cartiaux, Lecouvet, Cornu, Delloye, Banse

11:20 A biomechanical feedback system for periacetabular osteotomy: Experience after 10 clinical cases and ongoing developments
Armiger, Armand, Lepistö, Tallroth, Lohikoski, Mears, Taylor

CAOS-International Travel Fellowships – Reports by the 2005 Fellows

11:30 Navigated fracture reduction
Yoram Alexander Weil

11:40 Exploration of augmented reality technology for orthopedic skill training
Matthias Harders

Scientific Awards Ceremony

11:50 Best clinical podium presentation award
Sponsored by B. Braun Aesculap

Best technical podium presentation award
Sponsored by DePuy

Best clinical poster presentation award
Sponsored by B. Braun Aesculap

Best technical poster presentation award
Sponsored by NDI Europe

Closing

12:00 Closing remarks
Paul A. Grützner

12:15 ADJOURN

12:20 PRETZELS AND WHEAT BEER AT THE BAR OF THE CONVENTION CENTER

Venue Information

Venue

Heidelberg Convention Center
Neckarstaden 24
69117 Heidelberg
Germany

During the Meeting

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