

Paris, France, June 16-19, 2010

Computer Assisted Orthopaedic Surgery

10th Annual Meeting of
CAOS-International
Final Program

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SHARING EXPERTISE

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Department of Orthopaedics, University Joseph Fourier, Grenoble, France

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CME Credits

The French Society of Orthopaedics (SOFCOT) has awarded the following education and training credits to the 10th Annual Meeting of CAOS-International

Half-day 4 CME credits

Maximum 20 CME credits

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URL <http://www.CAOS-International.org/2010/>

Wednesday, June 16, 2010

Pre-Congress Educational Workshops

After the great success last year, we will again offer a number of pre-congress educational workshops – even more than in 2009! A faculty of renowned experts will comprehensively introduce workshop participants to selected topics related to computer assisted orthopaedic surgery.

Two basic workshops will run in parallel and take place at 11:00-14:00 followed by six parallel advanced workshops (14:00-18:15).

Basic Workshop I – Introduction to CAOS for Clinicians New to the Activity

Organizers: Stéphane Lavallée and Leo Joskowicz

The goal of this workshop is to explain to clinicians the basic technical concepts of CAOS and their current use in clinical orthopaedic procedures. Technical concepts include visualization, segmentation, and modeling of anatomical structures from preoperative CT images, computer-based preoperative planning, real-time tracking, imaging, and registration for intraoperative navigation, and robot-assisted intraoperative execution. Computer-based procedures include total hip and total knee replacement, spinal procedures, ACL reconstruction, and fracture reduction and fixation.

Basic Workshop II – Introduction to CAOS for Technologists New to the Activity

Organizers: Eric Stindel and Paul Alfred Grützner

Computer assisted surgery, including new technologies of intraoperative 3D imaging, is indispensable in orthopaedic and trauma surgery since many years. This workshop is aiming at students and young engineers, providing an overview on the actual status of CAOS in clinical use.

For future developments, an intense dialogue between developers, researchers and physicians is essential. Efficient research must be orientated on clinical problems and needs. For that purpose an understanding of special conditions in the operation room and of limitations of existing technology is very important. The common goal of engineers and clinicians is the development of more precise, more reliable, simpler and - last but not at least - more cost efficient systems for relevant and demanding problems.

This workshop is conducted by physicians with many years of personal experience in computer assisted orthopaedic surgery. It will provide its participants with the unique opportunity of getting personal contact for questions and for discussion.

Advanced Workshop I – Custom-made Surgical Guides

Organizers: Klaus Radermacher and Hans-Walter Staudte

The individual template (or customized surgical guides) approach has been originally developed and evaluated in different clinical applications in orthopaedic surgery in the early 1990s. Meanwhile, applications in other disciplines such as cranio-facial surgery as well as dental implantology have been established. Due to its intraoperative simplicity and intuitive handling together with a proven effectiveness and efficiency for selected applications, the individual template approach today is adopted by many clinicians and companies world wide. The workshop will provide a critical review of the benefits and bottlenecks of the template technique - from a historical review to its actual techniques and applications.

The workshop will include topics such as:

- Information acquisition and preprocessing (CT, MR, initial approaches, current techniques and future trends...)
- Planning systems for different applications
- Manufacturing approaches and techniques
- Surgical techniques and applications
- Clinical outcomes review
- Usability and workflow considerations

Advanced Workshop II – THR & HR**Organizers: Stephen Murphy and Randy E. Ellis**

As the majority of hip arthroplasties placed without navigation continue to be significantly malpositioned, the need for efficient, simple, and accurate methods of ensuring proper component positioning has become increasingly important. Traditionally, navigation of both total hip arthroplasty and hip resurfacing has taken the form of image-based or image-free systems based on optical or electromagnetic tracking. Increasingly, navigation has been evolving toward both individual patient-specific custom template guides or reuseable mechanical navigation instruments that can be adjusted for individual patient anatomy.

This course will cover:

- Image-free and image-based registration techniques
- Mechanical navigation using customized templates based on pre-operative CT imaging
- Mechanical navigation using re-useable instruments adjusted for individual patient anatomy based on either pre-operative CT imaging and plain radiographs
- Clinical outcomes following application of each of these techniques

The course will be presented by scientific and clinical leaders and pioneers in the field of hip navigation. At the conclusion of the course, clinicians will be familiar with simple, efficient methods of achieving proper component positioning with little, if any, additional operative time.

Advanced Workshop III – TKR & Uni-compartmental Knee Surgery**Organizers: Jean Yves Jenny and Justin Cobb**

This four-hour workshop is aimed at the investigator or clinician who wants to understand the details of the CAOS methodologies currently used in total and unicompartamental knee arthroplasty. We have split the session into the six key elements of the process:

- Preop planning
- Registration
- Bone preparation
- Balancing
- Intraoperative alignment checking
- Postoperative validation

Experts will defend the system that they are championing, explaining how that system addresses each of these elements in detail. The relative strengths and weaknesses of the different approaches will be debated.

Delegates will leave with insight into the philosophy behind the different approaches and an appreciation of the real evidence for what they deliver in this challenging field.

Advanced Workshop IV – Robotics & Navigation Systems**Organizers: Jocelyne Troccaz and Brian L. Davies**

Robotics and navigation systems for orthopaedic surgery have come a long way in the last 15 years. Systems have become smaller, easier to use, and more accurate. This workshop will consider a number of technological issues given by leading groups as well as presentations on a range of applications from clinicians using all the major robotic systems. One of the largest sources of error has been "registration" between the pre-operative model and the intra-operative system of patient and the CAOS device, and so this has been given a separate session.

The workshop will be presented by a number of internationally renowned speakers who are active in the technology and clinical application of navigation and robotics.

Advanced Workshop V – Novel Technologies & Biomechanics

Organizers: Wafa Skalli and Branislav Jaramaz

Several novel technologies have been introduced in CAOS in recent years. Some are based on a new generation of sensors and devices, and some on synergistic approaches that combine CAOS with new advances in biological sciences and Biomechanics.

Apart from progress in surgical guidance techniques, Biomechanics and novel technologies lead to progress in surgery planning and evaluation. This workshop will address the following topics in two sessions of four presentations each: Novel technologies for surgical guidance:

- Advances in position tracking
- Sensors and CAOS
- Small robots and intelligent devices for CAOS
- CAOS and tissue engineering

Biomechanics and Novel technologies for surgery planning and evaluation:

- Innovative implants and process
- Devices and models
- CAOS and osteoporosis

The workshop will present a broader overview of the state of the art of each topic as well as the authors' own experience in the respective field. It will address the novel approaches in research and the applications in clinical practice.

Advanced Workshop VI – Statistical Shape Modeling and 2D-3D Reconstruction

Organizers: Mauricio Reyes and Guoyan Zheng

Statistical shape analysis is an important tool for understanding anatomical structures from medical images. Statistical shape models give efficient parameterization of the shape variations found in a collection of sample models of a given population. Model-based approaches are popular due to their ability to robustly represent objects. In the last ten years, constructing a patient-specific shape model from a limited number of calibrated x-ray images has drawn more and more attentions. Among possible applications, the need for CT/MRI data to gather bone morphological information can be eliminated, pathologies can be automatically detected, and structural biomechanical behavior of human structures can be efficiently incorporated in surgical planning and simulation.

The aim of the workshop is to introduce and present statistical shape modeling and 2D-3D reconstruction to researchers working in Computer Assisted Orthopedic Surgery (CAOS) and related topics. The workshop will focus on two main aspects: statistical shape models and their applications, and the 2D-3D reconstruction algorithms and their applications to orthopaedic research and intervention.

The workshop will be presented by a varied list of internationally renowned speakers working actively on the topics of statistical shape modeling and 2D-3D reconstruction. The workshop aims at illuminating not only the methodologies but also the practical aspects of these technologies.

Welcome Reception at the Industrial Exhibition

18:15 REGISTRATION AND CAOS-INTERNATIONAL WELCOME RECEPTION

Participants of the above workshops are invited to join participants of the main conference in celebrating our Anniversary, the 10th Annual Meeting of CAOS-International. This reception takes place in the industrial exhibition of the meeting.

21:00 END OF THE DAY

Thursday, June 17, 2010

7:00 REGISTRATION

7:45 Introduction to the 10th Annual Meeting
P Merloz, BL Davies

Welcome address

Prof. Jean Paul Levai, Vice President of the French Academy of Orthopaedics

Session I – Trauma

Chairmen: Kwok-Sui Leung and Lutz-Peter Nolte

- 8:00 The advantage of navigation in SI screwing – preliminary results of a multicenter study
König B, Lunquist J, Gebhard F, Grützner PA, Messmer P, Kahler DM, Krettek C, Stöckle SU
- 8:07 Femoral neck shortening and varus collapse after navigated fixation of intracapsular femoral neck fractures
Weil YA, Khoury A, Liebergall M, Zuaiter I, Mosheiff R
- 8:14 Screw placement for acetabular fractures. Which navigation modality (2D vs. 3D) should be used?
Gras F., Marintschev I, Wilharm A, Klos K, Mückely T, Hofmann GO, Kahler DM
- 8:21 Intramedullary nailing using a CAOS system based on ultrasound images
Masson-Sibut A, Petit E, Leitner F, Normand J
- 8:28 Intramedullary vs. extramedullary peritrochanteric femoral fixation: a retrospective quantitative patient-specific study
Peleg E, Joskwicz L, Liebergall M, Mosheiff R
- 8:35 DISCUSSION

Session II – Osteotomy

Chairmen: Justin Cobb and Angela Deakin

- 8:50 Development and validation of an adaptable biomechanical model for the planning of correction osteotomies
Belei P, De La Fuente M, Mumme T, Radermacher K
- 8:57 Navigation provides high accuracy in valgisation osteotomy for the osteoarthritic varus knee
Bartl C, Gebhard F, Keppler P
- 9:04 DISCUSSION

Session III – Unicompartmental Knee Arthroplasty

Chairmen: Justin Cobb and Angela Deakin

- 9:10 Effects of unicondylar prosthesis anteroposterior slope in lateral compartment translation in the ACL deficient knee
Suero EM, Citak M, Conditt M, Boscher MRF, Delos D, Pearle AD
- 9:17 Robotically guided bicompartamental arthroplasty
Conditt MA, Coon TM, Kreuzer S, Horowitz S, Jamieson ML
- 9:24 Two year outcomes of robotically guided UKA
Roche MW, Horowitz S, Conditt MA
- 9:31 DISCUSSION

Session IV – Biomechanics

Chairmen: Justin Cobb and Angela Deakin

- 9:40 Quantifying the biomechanics of knee laxity using computer-assisted technology
Clarke JV, Wearing SC, Riches PE, Picard F, Deakin AH

- 9:47 Kinematics-based knee flexion axis. An in-vitro comparison between derivations from tibio-femoral and patello-femoral joint motion
Belvedere C, Leardini A, Ensini A, Cenni F, Catani F, Giannini S
- 9:51 DISCUSSION

Coffee Break and Poster Session – Part 1

- 10:00 POSTERS S1-S6 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) Medico-economic evaluation of surgical navigation in the treatment of deficiencies of anterior cruciate ligament of the knee
Plaweski S
- S2) Lateral compartment translation in posterolateral corner injuries of the knee: a cadaveric study with navigated measurements
Suero EM, Petrigliano FA, Citak M, Delos D, Bosscher MRF, Pearle AD
- S3) Prospective intraoperative comparisons of computer-assisted double-bundle versus computer-assisted single-bundle anterior cruciate ligament reconstruction
Grimaldi M, Plaweski S
- S4) Poster S4 has been withdrawn
- S5) Orientation of the femoral component in resurfacing arthroplasty of the hip: in-vitro comparison of accuracy of computer navigation and mechanical jigs
Bansal R, Verma R, Gambhir AK, Murphy P
- S6) Navigating cup orientation with individualized guides during hip resurfacing
Kunz M, Rudan JF
- 1) Combined graft-elongation maps from in vivo kinematics data for knee laxity assessment during navigated ACL reconstruction
Fernandez A, Promayon E, Moreau-gaudry A, Plaweski S, Cinquin P
- 2) Influence of applied valgus force during mechanized pivot shift: computer assisted measurements in a cadaveric study
Bosscher MRF, Suero EM, Pearle AD, Citak M
- 3) Software for compartmental translation analysis and virtual 3D visualization of the pivot shift phenomenon
Suero EM, Choi D, Citak M, Bosscher MRF, Pearle AD, Plaskos C
- 4) Evaluation of in vivo hip joint center estimation by three methods
Pillet H, Hausselle J, Sudhoff I, Bonnet X, Skalli W
- 5) Biomechanical role of lahlaiidi meniscologamentous band: a knee kinematic model based on navigation station data for computer-assisted knee surgery
Zemirline A, Stindel E, Zemirline A, Dubrana F
- 6) The association between shape descriptors of segmented areas of subchondral sclerosis of the upper tibia and the mechanical axis of the lower limb
Sampath SAC, Davies H, Voon SH
- 7) Gender-specific total knee replacement. Is it better fit female anatomic variations?
Song EK, Seon JK, Lee DS, Jeong MS, Park HW, Lee DH
- 8) Assessment of acetabular anteversion aligned with the transverse acetabular ligament – cadaveric study using image-free navigation system
Fukunishi S, Fukui T, Nishio S, Fujihara Y, Yoshiya S
- 9) Analysis of artificial hip joint dislocation considering muscles around a hip joint
Hayashi Y, Horie T, Kiguchi K, Ueno M, Kobayashi T, Mawatari M, Hotokebuchi T
- 10) A comparison of different biomechanical hip-models
Eschweiler J, Fieten L, Bele P, Kabir K, De La Fuente M, Radermacher K

ACL

Biomechanics

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| 11) | The dynamic behavior study through finite element method of a new implant used in human ankle joint arthroplasty
<i>Copilusi PC, Rinderu P, Marin M, Mazilu T</i> | Biomechanics |
| 12) | Statistical determination of the femoral neck isthmus: three-dimensional femoral neck anatomy
<i>Nakamura T, Enomoto H, Yanagimoto S, Fujita Y, Funayama A, Toyama Y, Suda Y</i> | |
| 13) | Is pincer impingement associated with osteoarthritis?
<i>Klingenstein GG, Murphy SB</i> | |
| 14) | Validation of statistical shape model based reconstruction of the proximal femur: a morphometric study
<i>Schumann S, Tannast M, Nolte LP, Zheng G</i> | |
| 15) | 3D shapes of the arthritic hip joint: a preliminary study
<i>Rasquinha B, Rudan JF, Wood GCA, Ellis RE</i> | |
| 16) | Optoelectronic analysis of the hip range of motion in lateral position and standing position: applications to the computer-aided surgery systems
<i>Pinoit Y, Bar P, Bouilland S, Migaud H</i> | Osteotomy |
| 17) | The role of navigation in high tibial osteotomy: a study of 50 (100) cases
<i>Heijens EA, Kornherr P, Meister C</i> | |
| 18) | Computer assisted navigation of high tibial osteotomies for the treatment of adolescent/infantile genu varum (Blount's disease)
<i>Whitlock PW, Holden M, Frino J</i> | Other Joints |
| 19) | Location of the ulno-humeral joint axis based on anatomical landmarks
<i>Leboucher J, Lempereur M, Savéan J, Burdin V, Rémy-Néris O</i> | |
| 20) | Accuracy and precision of directly navigated scaphoid pinning and conventional percutaneous pinning
<i>Al-Sanawi HA, Ellis RE, Sellens RW, Smith EJ, St. John PJ, Pichora DR</i> | |
| 21) | Poster 21 has been withdrawn | Oncology |
| 22) | Planning and navigation of an internal hemi-pelvectomy using a dual navigation system
<i>Rudan JF, Yach J, Kunz M, Ellis RE</i> | |
| 23) | Evolving role of computer assisted surgery in musculoskeletal oncology
<i>Mahendra A</i> | Resurf. |
| 24) | Computer assisted surgery (CAS) in orthopaedic oncology
<i>Gerbers JG, Jutte PC</i> | |
| 25) | Examination of post-operative femoral component angle of resurfacing THA that uses custom jig
<i>Yoshida T, Ikebuchi M, Minoda Y, Iwaki H, Nakamura H</i> | |

Session V – Total Hip Arthroplasty, Part 1 – Registration and New Technologies

Chairmen: Andy Pearle and Guoyan Zheng

- 11:00 The Hip Sextant: navigation of acetabular cup orientation for hip arthroplasty
Steppacher SD, Kowal J, Murphy SB
- 11:07 Navigated ultrasound enables accurate cup positioning in total hip arthroplasty
König C, Südhoff I, Mollard B, Sharenkov A, Hasart O, Duda GN, Heller MO
- 11:14 Can the cup of a total hip replacement be oriented in the same way for all patients? Evaluation with an experimental model reproducing an imageless navigation system based on kinematics
Migaud H, Pinoit Y, Laffargue P
- 11:21 DISCUSSION
- 11:30 Assess the reliability of a distal pinless array system to determine limb length during total hip arthroplasty using computer-assisted navigation
Perumal V, Swank M
- 11:37 Pinless femoral referencing for navigated total hip arthroplasty. Is it really accurate?
Renkawitz T, Gneiting S, Haimerl M, Wegner M, Schubert M, Kalteis T, Grifka J, Sendtner E

- 11:44 Advantage of newly developed CT-based fluoroscopy matching navigation system for total hip arthroplasty
Yanagimoto S, Nakayama S, Kaneko H, Fujita Y, Funayama A, Yabuki Y, Sasaki T, Toyama Y
- 11:51 DISCUSSION

Session VI – Modeling and Simulation

Chairmen: Philippe Merloz and Jocelyne Troccaz

- 12:00 Optimization of statistical shape models of the innominate bone
Turner AW, Davies BL, Rodriguez Y Baena F
- 12:07 Segmenting peri-prosthetic femoral tissues in patients suffering aseptic loosening: a statistical CT image voxel classifier
Malan DF, Botha CP, Tax DMJ, Loog M, Nelissen RGHH, Valstar ER
- 12:14 A simulator for learning percutaneous orthopaedic surgery
Larcher A, Tonetti J, Luengo V, Ceaux E, Vadcard L, Dubois M
- 12:21 DISCUSSION

Keynote Lecture I

- 12:30 Preoperative planning and postoperative assessment in spine surgery
Jean Dubousset, Paris, France

Lunch Break

- 13:00 LUNCH BREAK AT THE INDUSTRIAL EXHIBITION

Session VII – Total Knee Arthroplasty, Part 1 – Kinematics and Outcomes

Chairmen: Kamal Deep and John F. Rudan

- 14:00 Computer-assisted measurements of coronal knee joint laxity in-vitro are related to low stress behaviour rather than structural properties of the collateral ligaments
Wilson W, Deakin AH, Wearing SC, Payne AP, Picard F
- 14:07 Intra-operative laxity of knee with cruciate retaining TKA using the balanced gap technique
Seon JK, Song EK, Park SJ, Jeong MS, Park JK, Lee DS
- 14:14 Postero-stabilised total knee replacements modify knee kinematics: an intraoperative study using navigation
Massin, P, Boyer P
- 14:21 DISCUSSION
- 14:30 Navigation of the trochlea (Amplivision®): a new approach to balancing the extensor apparatus during implantation of a total knee replacement. Preliminary radiographic results after 3 months
Peronne E, Chatenet T, Van Hille W, Lamglais E, Regnier C
- 14:37 Does navigation reduce the number of fixed flexion contractures after total knee arthroplasty? Two year review of 831 TKAs
Ahmad A, Maheshwari R, Deakin AH, Picard F
- 14:44 Variation of valgus osteoarthritic knee alignment in flexion before and after TKA with different navigation techniques
Mihalko WM, Kammerzell S, Saleh KJ, Hakki S
- 14:51 DISCUSSION
- 15:00 How can computer assisted surgery help to achieve high flexion in TKR?
Toupin JM
- 15:07 Computer-assisted non-constrained total knee arthroplasty with osteotomy of the lateral femoral condyle for severe valgus deformation
Nizard R, Aim F, Zadegan F, Raould A, Hannouche D
- 15:14 Computer navigation versus conventional total knee replacement: a prospective, randomized control trial showing no difference in functional results at five years
Harvie P, Sloan K, Beaver RJ

15:21 DISCUSSION

Coffee Break and Poster Session – Part 2

15:30 POSTERS S7-S11 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.

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| <p>S7) Two-year- results of 3D-based navigation at interventions of the cervical and thoracic spine – benefit and problems
<i>Jarvers JS, Katscher S, Blattert TR, Josten C</i></p> <p>S8) Adjustment of leg length discrepancy using imageless navigation THA software without a femoral tracker
<i>Nishio S, Fukunishi S, Fukui T, Fujihara Y, Yoshiya S</i></p> <p>S9) Minimal-invasive total hip arthroplasty with trial head navigation on a fracture table using stem-first technique
<i>Widmer KH</i></p> <p>S10) Clinical and radiological outcomes of short stem THA in mini invasive navigated THA
<i>Hakki S</i></p> <p>S11) Acetabular center axis: a novel alternative registration point to anterior pelvic plane in navigated THA
<i>Hakki S</i></p> <p>26) Metal-on-metal resurfacing of the hip with kinematic navigation: follow-up 4 years
<i>Pink M, Lisy M, Pink T, Parizek A</i></p> <p>27) The change on vertebral axial rotation after posterior instrumentation of idiopathic scoliosis: a prospective evaluation with the 3D X-ray orthopedic imaging system (EOS)
<i>Courvoisier AC, Garin CG, Abdoulgamil NA, Paoli VP, Pracros JPP, Kohler RK</i></p> <p>28) Current use of navigation in spinal surgery
<i>Wong E, Wilde P</i></p> <p>29) Mechanical stability analysis of reference clamp fixation in computer-assisted spine surgery
<i>Citak M, Suero EM, Uksul N, Pearle AD, Krettek C, Stübig T, Hüfner T</i></p> <p>30) A comparison study of two-dimensional and three-dimensional navigation methods
<i>Vasarhelyi EM, Simpson AL, Borschneck DP, Ma B, Stewart AJ, Ellis RE</i></p> <p>31) Soft tissue evaluation with CAS in total knee replacement
<i>Briard, JI MD, Witoollkollachit, P MD, Guo, L MD</i></p> <p>32) Multicentric functional evaluation of TKA by mean of navigation technology
<i>Bignozzi S, Castelli CC, Gotti V, Colle F, Zaffagnini S, Marcacci M</i></p> <p>33) Computer assisted TKA by use of the jig-engaged three-dimensional preoperative planning system: an accuracy examination in clinical cases
<i>Sato T, Watanabe S, Omori G, Koga Y</i></p> <p>34) Bone morphing system for rotational alignment in total knee arthroplasty
<i>Wu H, Van Driessche S, Goutallier D</i></p> <p>35) An intelligent bone cutting tool in robotic-assisted knee replacement
<i>Yen PL, Hung SS</i></p> <p>36) Influence of navigation in total knee prosthesis: results from our 100 first cases and literature review
<i>Bajard X, Barbier O, Ollat D, Versier G</i></p> <p>37) Influence of femoral malrotation on lower limb mechanical axis and knee joint intraarticular contact pressures. A navigated an mechanical measurement
<i>Citak M, Suero EM, Oszwald M, Citak M, Bosscher F, Hüfner T, Krettek C</i></p> <p>38) 3D-navigated removal of an auto-aggressively buried needle – first clinical application
<i>Hofbauer VR, Surke C, Loehner L, Ochman S, Ruebberdt A, Raschke MJ</i></p> <p>39) Experimental navigation for bone reconstruction
<i>Normand J, Harisboure A, Leitner F, Pinzuti JB, Dehoux E, Masson-Sibut A</i></p> | <p>Resurf.</p> <p>Spine</p> <p>Total Knee Replacement</p> <p>Trauma</p> |
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| 40) | Tip-to-apex-distance as a measure of fixation failure: a retrospective quantitative validation study by simulation
<i>Peleg E, Joskowicz L, Liebergall M, Moshieff R</i> | Trauma |
| 41) | Experimental approach of fracture of leg with computer navigation
<i>Normand J, Harisboure A, Leitner F, Pinzuti JB, Masson-Sibut M, Dehoux E</i> | |
| 42) | Can 3D computer planning help optimize acetabular column screw placement?
<i>Nakhla A, Richards R, Davda K, Lewis A, Abdelazeem H, Cobb J</i> | |
| 43) | Quantification of lateral compartment translation magnitudes during pivot shift test in knees with unicompartmental knee replacement and single-bundle ACL reconstruction
<i>Citak M, Bosscher MRF, Musahl V, Pearle AD, Suero EM</i> | Uni-compartmental Knee |
| 44) | Navigated, minimal invasive, mobile bearing unicompartmental knee prosthesis. A 2-year follow-up study
<i>Jenny JY, Saussac F, Louis P</i> | |
| 45) | Navigated uni-compartmental knee replacement – should we be lowering our threshold for bone conserving surgery? A functional and radiological review of seventy-five cases
<i>Windley J, Ball S, Nathwani D</i> | |
| 46) | Proximal femoral tilt and its effect on range-of-motion
<i>Haimerl M, Gneiting S, Dohmen L, Herzog A, Kramer S, Woerner M, Sendtner E, Renkawitz T</i> | Total Hip Replacement |
| 47) | Statistical method for determining acetabular cup orientation error introduction
<i>Thornberry RL, Barbu A, Martin JD, Toole GC</i> | |
| 48) | Impingement detection post total hip arthroplasty using patient-specific modeling
<i>Lin F, Kadono N, Wixson R L, Hendrix R, Loan J P, Makhsous M,</i> | |
| 49) | Interest of navigation in the control of the leg length during total hip replacement. Prospective study of 65 cases
<i>Châtain FG, Barthelemy R, Delalande JL, Tayot O, Chavane F, Béjui-Hugues J, Scor G</i> | |
| 50) | Variability of the anterior pelvic plane to the hip center ASIS pelvic plane
<i>Thornberry RL, Martin JD, Toole GC, Barbu A</i> | |
| 51) | Comparison of anatomic data between the native hip and after a total prosthesis with a modular neck for centred degenerative hip disease
<i>Merloz PF, Eid A, Bourgeois E, Tonetti J</i> | |

Session VIII – Oncology

Chairmen: Shameem Sampath and Philippe Cinquin

- 16:30 Bone sarcomas: computers assist the surgical treatment
Paul L, Cartiaux O, Docquier PL, Delloye C, Banse X
- 16:37 Merged CT/MRI data for navigated soft tissue tumour resection of the pelvis and spine
Schultheiss M, Arand M, Gebhard F
- 16:44 Computer-assisted allograft selection for transepiphyseal tumor resection at the knee
Bou Sleiman H, Ritacco LE, Reyes M
- 16:51 DISCUSSION

Session IX – Shoulder

Chairmen: André Bauer and Philippe Cinquin

- 17:00 CT-based custom jig for glenoid component alignment in reverse total shoulder arthroplasty
Suero EM, Lo D, Citak M, Bosscher MRF, O'Loughlin PF, Pearle AD
- 17:07 Evaluation of recognition-based segmentation method for shoulder augmented surgery
Chaoui J, Moineau G, Stindel E, Hamitouche C
- 17:14 DISCUSSION
- 17:20 END OF THE DAY

Friday, June 18, 2010

7:30 REGISTRATION

Session X – Total Knee Arthroplasty, Part 2 – Accuracy and Robotics

Chairmen: Robert Thornberry and Fernando Rodriguez y Baena

- 8:00 The factors affecting the ability of an intra-operative navigation system to help select ideal femoral component size in TKA
Schmidt PH, Yaffe MA, Mccarthy R, Stulberg SD
- 8:07 Study of the medio-lateral position of the tibial component relative to the initial anatomical centre of the tibial plateau during implantation of a total knee replacement
Peronne E, Chatenet T, Lamglais E, Van Hille W
- 8:14 Rotationnal alignment of femoral component with computed-assisted surgery during knee arthroplasty
Boisrenoult PH, Michaut M, Pujol N, Abadie P, Galaud B, Fallet L, Beaufils PH
- 8:21 DISCUSSION
- 8:30 Cutting errors in total knee replacement
Yau WP, Chiu KY, Yan CH
- 8:37 Comparison of short-term clinical outcome of robotic total knee arthroplasty using the modified anatomic alignment method versus classic alignment method
Song EK, Seon JK, Jeong MS, Lee DS, Park JG, Park CH
- 8:44 Minimally invasive robot-assisted total knee arthroplasty compared with conventional robot-assisted total knee arthroplasty
Choi YW, Lee CT, Yoon SH, Trabish M
- 8:51 DISCUSSION

Session XI – Robots & Tools

Chairmen: Frédéric Picard and Jocelyne Troccaz

- 9:00 Gradient registration – a novel method for non-invasive robotic fracture reduction
Oswald M, Westphal R, Sattler S, Wiebking U, Hufner T, Wahl F, Krettek C, Gosling T
- 9:07 Accurate and reliable navigation of a surgical reaming device for femoral head-neck offset improvement – a cadaveric investigation
Ecker TM, Puls M, Bastian JD, Keel M, Büchler L, Steppacher SD, Siebenrock KA, Tannast M
- 9:14 Accurate robot assisted laser bone processing
Burgner J, Wörn H
- 9:21 DISCUSSION

Industrial Workshops

9:30 THE FOLLOWING TWO INDUSTRIAL WORKSHOPS WILL BE PRESENTED:

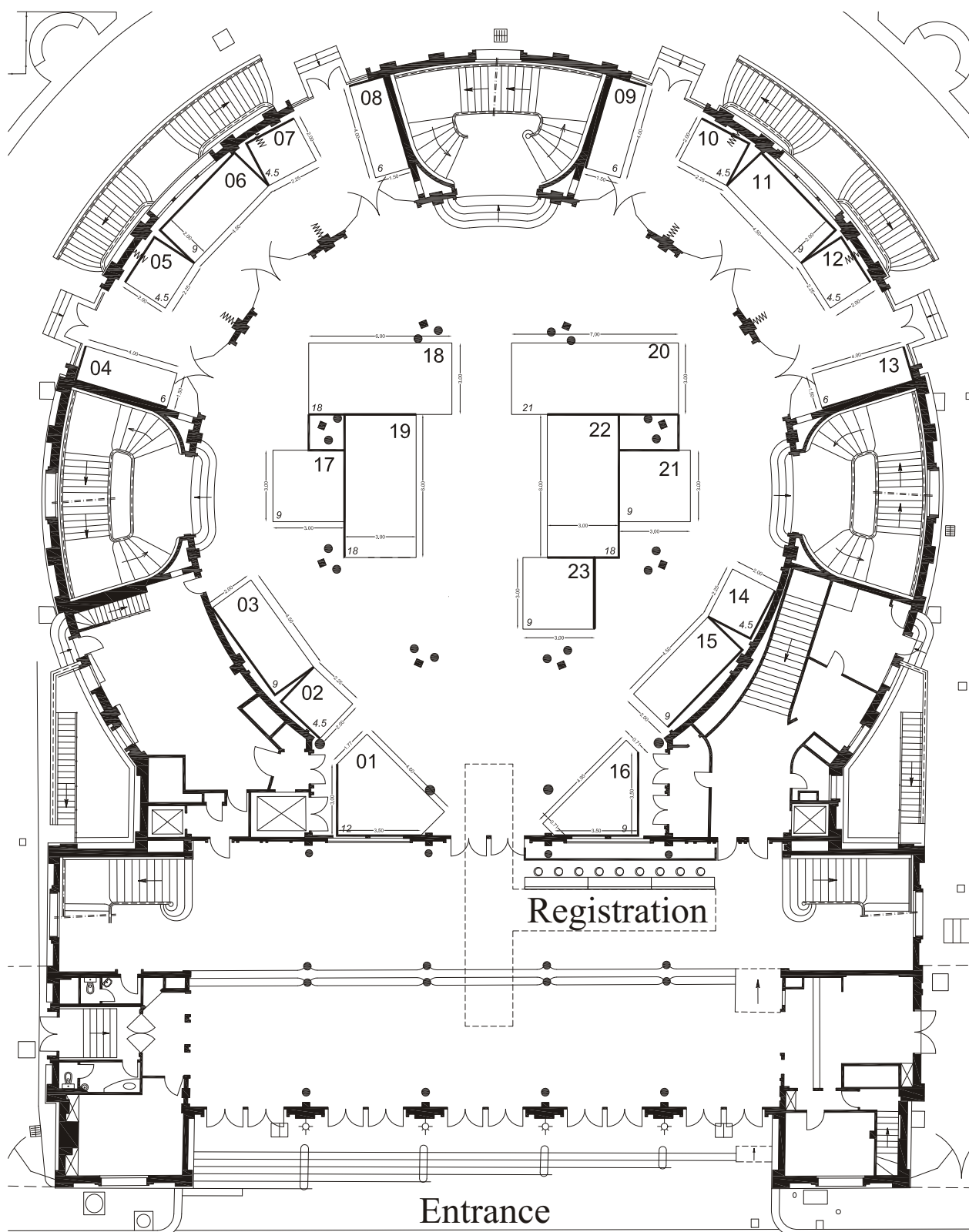
Brainlab: Trauma navigation – The next generation

Speakers: *Alexander Rübberdt (Center for Orthopaedics and Traumatology, Bielefeld, Germany)*
Vincent Hofbauer (Clinic for Traumatology, Münster, Germany)

Siemens: 3D fluoroscopy-based imaging & navigation, clinical workflow

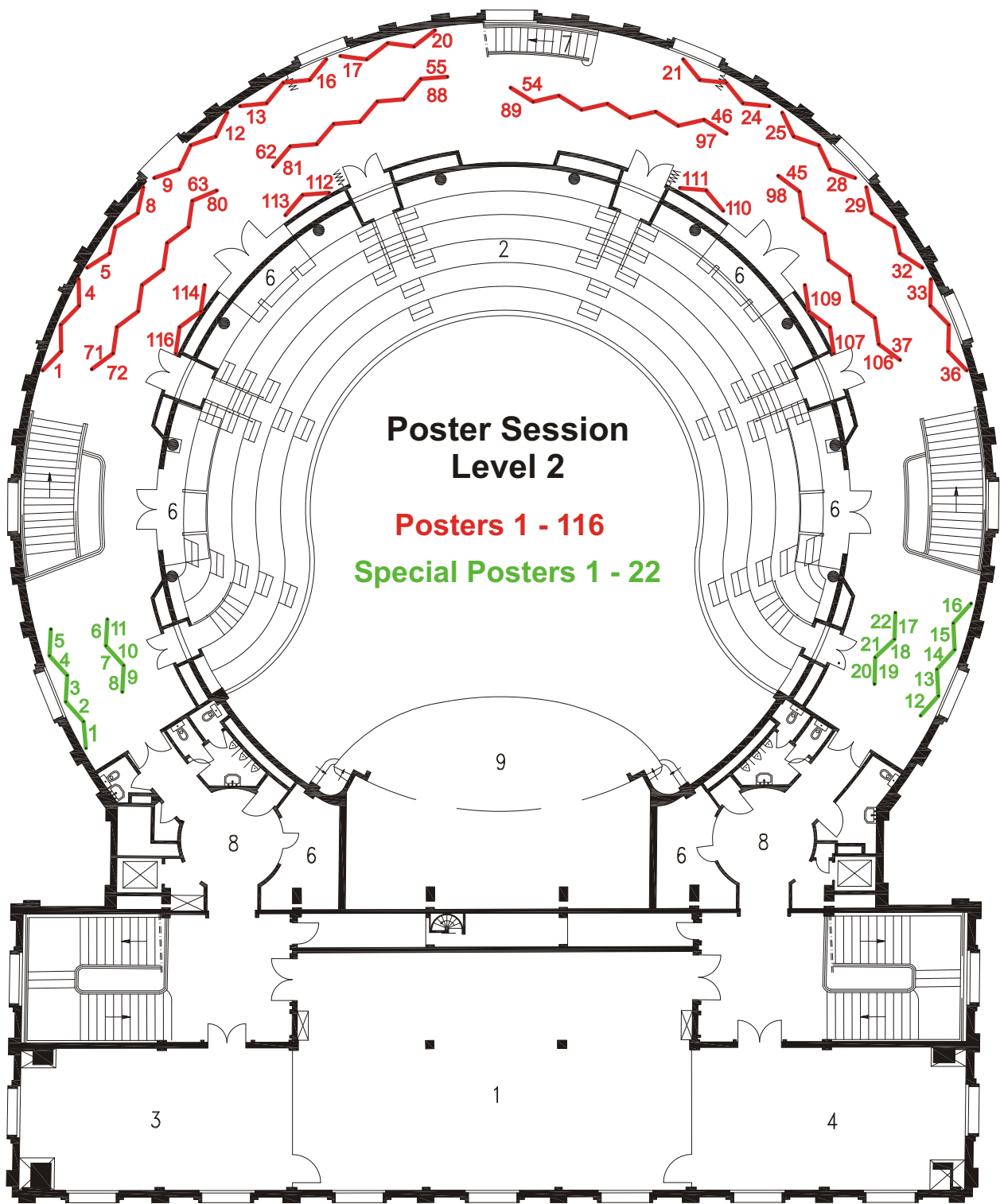
Speakers: *Philippe Adam (Haute-pierre University Hospital, Strasbourg, France)*
Joel Gueho (Haute-pierre University Hospital, Strasbourg, France)
Marc Heron (Siemens Healthcare, France)
Rolf Schmid (CAS Innovations, Erlangen, Germany)

CAOS 2010 Industrial Exhibition



- 1 Biomet
- 2 SurgiQual Institute
- 3 Smith & Nephew
- 4 Tornier International
- 5 OSTESYS
- 6 Swiss National Research Center Co-Me
- 7 IMASCAP
- 8 Philips France
- 9 GROUPE LEPINE
- 10 A²Surgical
- 11 OrthoMIT
- 12 Blue Ortho

- 13 biospace med
- 14 Surgivisio
- 15 Siemens Healthcare France
- 16 Bayer HealthCare
- 17 DePuy France
- 18 B.Braun Aesculap
- 19 BrainLAB
- 20 Zimmer
- 21 Medacta International
- 22 AMPLITUDE
- 23 SYMBIOS



CAOS 2010 Poster Exhibition

Session XII – Spine, Part 1 – Outcomes

Chairmen: Sam Hakki and Moshe Shoham

- 10:30 Fluoroscopy-based navigation versus conventional procedure in spine surgery
Merloz PF, Moreau-Gaudry A, Vouaillat H, Sadok B, Tonetti J, Troccaz J, Bongiorno V, Bodin A
- 10:37 Robotic assisted spinal surgery
Barzilay Y, Schroeder JE, Libergall M, Hasharoni A, Kaplan L
- 10:44 Two-year experience with 3D-navigation in posterior instrumentation of the cervical spine – reliability, application and benefit
Blattert TR, Jarvers JS, Katscher S, Josten C
- 10:51 DISCUSSION
- 11:00 8 years of clinical experience in navigation assisted upper cervical spine surgery
Tian W, Lang Z
- 11:07 Robotic assisted vertebral cement augmentation: a radiation reduction tool
Schroeder JE, Kaplan L, Hasharoni A, Joskowicz L, Barzilay Y
- 11:14 Comparison of the clinical accuracy of different methods for cervical (C2-C7) pedicle screw insertion
Liu Y, Tian W, Liu B, Li Q, Hu L, Li Z, Yuan Q, Zhang G
- 11:21 DISCUSSION

Coffee Break and Poster Session – Part 3

- 11:30 POSTERS S12-S17 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.
- S12) Comparative study of robotic and conventional total knee arthroplasty after a minimum of 3-year follow-up
Song EK, Seon JK, Jeong MS, Park SJ, Lee DS, Park JK
- S13) Effect of the rotational alignment of the tibial component
Mitsuyasu H, Matsuda S, Fukagawa S, Miura H, Okazaki K, Tashiro Y, Kawahara S, Iwamoto Y
- S14) Midterm results of total knee arthroplasty using a navigation system
Song EK, Seon JK, Jeong MS, Park JK, Park SJ, Seo CY, Lee DS
- S15) Navigated, mobile bearing total knee prosthesis. A 5-year follow-up study
Jenny JY, Schoenahl JY, Louis P
- S16) Ligament balance for varus knee in computer navigation total knee replacement
Yau WP, Chiu KY
- S17) Change of rotational alignment of the femoral component for the balanced flexion gap after posterior cruciate ligament resection in total knee arthroplasty
Song EK, Seon JK, Park SJ, Jeong MS, Park JK
- 52) Accuracy of CT based hip navigation system with fluoroscopic registration compared with landmark registration
Funayama A, Fujinaka T, Shimizu H, Okubo M, Yabuki Y, Fujita Y, Yanagimoto S, Toyama Y
- 53) Computer assisted analysis of the acetabular entry plane – a facility for proper cup placement in total hip arthroplasty
Radetzki F, Noser H, Stock K, Mendel T, Wohlrab D
- 54) Digital templating of the non-affected hip as a means of minimizing leg-length discrepancy after primary total hip arthroplasty
Swanson TV, Brown JM, Mamillapalli SK
- 55) Accuracy of CT-based computer-assisted total hip arthroplasty
Steppacher SD, Tannast M, Kowal J, Zheng G, Murphy SB
- 56) Navigation system improved cup orientation in revision total hip arthroplasty
Iwaki H, Ikebuchi M, Minoda Y, Yoshida T, Nishikino S, Nakamura H

- 57) Use of CT segmentation, rapid prototyping and virtual procedure simulation in difficult cases of hip replacement surgery
Lisanti M, Parchi P, Andreani L, Ferrari V, Condino S, Moglia A, Ferrari M, Mosca F
- 58) Three dimensional analysis of uncovered area of cementless cup using a CT-based computational analysis
Hananouchi T, Saito M, Yoshikawa H, Sugano N
- 59) Can the amplivision navigation system serve as an alternative to the use of a tensor in flexion to determine rotation of the femoral implant during total knee replacement surgery?
Peronne E, Chatenet T, Lamglais E, Van Hille W, Regnier C
- 60) Isometricity of navigational ACL reconstruction and its clinical outcome
Song EK, Seon JK, Lee DS, Jung MS, Park JK, Cho NY
- 61) Preliminary clinical results of patient specific cutting blocks for total knee replacement (TKR)
Hafez MA, Jansen A, Portheine F
- 62) Economical aspect of surgical navigation in TKA
Gruber P
- 63) Comparative study of stability and clinical outcomes after total knee arthroplasties between navigation system and conventional techniques
Seon JK, Song EK, Park JK, Park SJ, Jeong MS
- 64) Preoperative simulation of total knee arthroplasty using 3D planning software in the cases with bony defect
Shimosawa H, Enomoto H, Nakamura T, Takeuchi H, Niki Y, Toyama Y, Suda Y
- 65) Use of a semi-active system for femoral cuts in TKR – the initial results after the first 20 cases
Perrier JP, Mandrino A
- 66) The accuracy of utilizing an intra-operative navigation system to help select ideal femoral component size in TKA
Schmidt PH, Yaffe MA, Mccarthy R, Stulberg SD
- 67) Intra-operative analysis of the kinematic behavior of a total knee replacement by a navigation system. Initial experience and further development
Jenny JY, Firmbach FP
- 68) Preliminary experience with electromagnetic navigation system in TKA
Tigani D, Sabbioni G, Del Piccolo NA, Rida BA
- 69) Digital templating compared with kinematic navigation in TKR
Hart R, Janeček M, Safi A, Okál F
- 70) Tibial and femoral joint lines are well restored when navigation surgery is performed for total knee arthroplasty
Catani F, Biasca N, Ensini A, Leardini A, Belvedere C, Giannini S
- 71) Electromagnetic navigation vs. conventional total knee replacement. A functional benefit?
Smith JR, Blyth M, Rowe PJ, Jones B
- 72) The accuracy of acquisition of an imageless computer-assisted system and its implication for knee arthroplasty
Lustig S, Servien E, Badet R, Demey G, Neyret P, Donell S
- 73) Computer modeling of TKA alignment variations: the next step towards predicting and improving outcomes in TKA
Mihalko WM, Williams JL
- 74) Safe tracker placement in computer-navigated TKA
Hernandez J, Bayers-Thering M, Phillips M, Krackow K
- 75) Pinholes fractures after computer-assisted total knee arthroplasty: a new complication
Boisrenoult PH, Beladame J, Pujol N, Beaufils PH
- 76) The usage of computer navigation with knee replacement surgery
Kaminsky AV, Gorbunov EV

THR

Total Knee Replacement

- 77) Navigated total knee prosthesis exchange. A comparative study with conventional technique
Jenny JY, Diesinger Y

Keynote Lecture II

- 12:30 What will CAOS's future be?
Jacques Demongeot, Grenoble, France

Lunch Break and General Assembly of CAOS-International

- 13:00 LUNCH WILL BE SERVED IN THE INDUSTRIAL EXHIBITION. 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 XIII – Ultrasound

Chairmen: Peter Keppler and Stéphane Lavallée

- 14:00 Patch-SSM based APP reconstruction from ultrasound images
Schumann S, Schwaegli T, Haeni T, Siebenrock KA, Zheng G
- 14:07 Towards an arthrosonic environment
Moerau-Gaudry A, Griaudeau-Montaut D, Meneses A, Mercier N, Gaudin P, Adler RS
- 14:14 Non invasive ultrasound-based bone tracking
Schers J, Troccaz J, Fouard J
- 14:21 DISCUSSION

Session XIV – Hip Resurfacing

Chairmen: Stephen B. Murphy and Carolyn Anglin

- 14:30 Computer-navigated core decompression for osteonecrosis
Amzallag J, Dohn P, Laval G, Flouzat Lachianette CH, Jalil R, Ouanes R, Hernigou P
- 14:37 Hip resurfacing with individualized drill templates – comparison between antero-lateral and posterior approach
Kunz M, Rudan JF, Wood GCA, Ellis RE
- 14:44 3D-MRI based planning of hip resurfacing: a comparison with 3D-CT based planning
Nakasone S, Takao M, Nishii T, Sakai T, Nakamura N, Sugano N
- 14:51 DISCUSSION

Round Table I – ACL

- 15:00 Chairman: Burt Klos
Participants: Stefano Zaffagnini, Jason Koh, Andrew Pearle, Stephan Plasewski

Coffee Break and Poster Session – Part 4

- 15:30 POSTERS S18-S22 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.
- S18) Automatically-optimized local phase features of ultrasound images: first clinical study
Hacihaliloglu IH, Abugarbieh RA, Hodgson AH, Rohling RR, Guy PG
- S19) Two-step spine vertebra reconstruction from multiple endoscopic images under atlas constraints
Wu C, Narasimhan S, Jaramaz B
- S20) Planned versus achieved cup orientation: a method for demonstrating the accuracy of CT based navigation
Davda K, Nakhla A, Hart AJ, Cobb JP
- S21) Effects of femur shaft fracture type on robotic assisted fracture reduction
Joung S, Doke T, Kobayashi E, Nakajima Y, Sugano N, Bessho M, Ohnishi I, Sakuma I

- S22) 3D versus 2D computerized navigation for the internal fixation of medial and lateral femoral neck fractures.
An experimental study
Mueller MC, Belei P, De La Fuente M, Kabir K, Burger C, Radermacher K, Wirtz DC
- 78) The value of navigation in total knee replacements
Denjean S, Chavane H, Delalande JL, Gaillard T, Tayot O, Chatain F, Pibarot V, Guyen O, Carret JP, Béjui-Hugues J
- 79) Navigation assisted total knee arthroplasty in knee osteoarthritis due to extra-articular deformity
Digennaro V, Catani F, Ensini A, Belvedere C, Leardini A, Giannini S
- 80) Novel analyses of lateral bowing of femur in the coronal plane by applying 3D image processing software
Enomoto H, Nakamura T, Toyama Y, Suda Y
- 81) The effect of pelvic movement on the accuracy of hip centre location acquired using an imageless navigation system
Lustig S, Servien E, Badet R, Demey G, Neyret P, Donell S
- 82) Flexion axis in osteoarthritic knees
Colle F, Castelli CC, Bignozzi S, Gotti V, Zaffagnini S, Marcacci M
- 83) Anterior border of tibia as a landmark for extramedullary alignment guide in total knee arthroplasty
Fukagawa S, Matsuda S, Mitsuyasu H, Miura H, Okazaki K, Tashiro Y, Iwamoto Y
- 84) Jig-engaged three-dimensional preoperative planning system for computer assisted TKA – validation study
Watanabe S, Sato T
- 85) CT joint analysis combined with computer navigated surgery for complex knee arthroplasty in post traumatic or deformed limb patient
Molajo AG, Konala P, Ball S, Iranpour F, Nathwani D
- 86) Does navigated total knee replacement lead to greater improvement of health related quality of life than non-navigated one?
Pach M, Spacil A, Holibka R
- 87) Accuracy of CT-based navigation for total knee arthroplasty – comparison of 2D and 3D analysis
Matsuda S, Mizu-uchi H, Fukagawa S, Mitsuyasu H, Miura H, Okazaki K, Tashiro Y, Iwamoto Y
- 88) Use of navigation for investigation of femoral neck cut level and positioning of modular short-stem implant
Mihalko WM, Saleh KJ, Heller MO, Mollard B, König C, Kammerzell S
- 89) THR – leg length only navigation
Graf PC
- 90) A cadaver study validating CT assessment of acetabular component orientation: the Perth CT hip protocol
Harvie P, Fletcher T, Morrison D, Day R, Sloan K, Beaver R
- 91) Cost effective and practical computer assisted total hip option
Penenberg Bl, Riley M, Bolling Ws
- 92) Adjusting leg length discrepancy in total hip arthroplasty using digital templating systems
Hafez MA
- 93) Total anteversion in THA using image-free navigation system
Fukui T, Fukunishi S, Nishio S, Fujihara Y, Yoshiya S
- 94) Can computer navigation help us further with implant choice during total hip arthroplasty?
Hoffart HE, Vasak N
- 95) Tilting error of pelvic plane due to soft tissue
Lin F, Kadono N, Wixson R, Hendrix R, Makhsous M
- 96) Measuring pelvic tilt and rotation using 2D-3D matching: a validation study
Zheng G, Steppacher SD, Nolte LP, Murphy SB, Tannast M
- 97) Outliers detection and removal for accurate surface-based registration
Taquet M

Total Knee Replacement

Total Hip Replacement

Technology

- 98) Limb alignment measurement for high tibial osteotomy with a navigation system: a comparative study
Pujol N, Chemama B, Boisrenoult PH, Beaufile PH
- 99) Slice cutting surgical robot in total knee arthroplasty
Hung SS, Yen PL, Lee MY
- 100) Robot arm based flat panel CT-guided electromagnetic tracked spine interventions: phantom and animal model experiments
Penzkofer T, Isfort P, Bruners P, Kyriakou Y, Kalender WA, Schmitz-Rode T, Mahnken AH
- 101) Design of a novel hybrid 6dof external fixator system under consideration of special manufacturing boundary conditions in least developed countries
Jansen A, Belei P, Schröder S, Portheine F, Radermacher K
- 102) Sensitivity analysis of a biomechanical score for cup positioning in total hip arthroplasty
Dell'Anna J, Fieten L, Eschweiler J, Maus U, Radermacher K
- 103) An investigation of touch perception during interactions with an arthroscopic probe
Tenzer Y, Schwingshackl C, Gondhalekar A, Davies BL, Rodriguez Y Baena F

Session XV – Total Hip Arthroplasty, Part 2 – Frames of Reference and Outcome

Chairmen: Nubuhiko Sugano and Russel H. Taylor

- 16:30 Can transverse acetabular ligament be used for optimal cup placement using image less navigation in total hip arthroplasty?
Swank M, Perumal V
- 16:37 Development of image-free hip navigation system for dysplastic coxarthrosis
Ohashi H, Inori F, Okamoto Y, Okajima Y, Fukunaga K, Matsuura M
- 16:44 Study of intra and extra-articular planes of reference for use in total hip replacement
Hauselle J, De Thomasson E, Parratte S, Argenson JN, Wessely L, Moreau PE, Geais L, Skalli W
- 16:51 DISCUSSION
- 17:00 Functional anteversion of the acetabulum: importance of the assessment of the mobility at the lumbo-sacral joint for planning the implantation of a THA
Lazennec JY, Boyer P, Gorin M, Catonné Y, Rousseau MA
- 17:07 Dynamic measurement of hip movement in deep bending activities after total hip arthroplasty using a 4-dimensional motion analysis system
Tsuda K, Miki H, Kitada M, Nakamura N, Suzuki N, Yonenobu K, Sugano N
- 17:14 Three dimensional alignments of acetabular cups after navigation THA measured with hip CAS system
Tokunaga K, Watanabe K
- 17:21 DISCUSSION
- 17:30 Accuracy of robotically assisted acetabular cup implantation
Dorr LD, Pagnano MW, Trousdale RT, Jamieson ML, Conditt MA
- 17:37 Activities of daily living of the patients after total hip arthroplasty using CT-based navigation system
Nakamura N, Nishii T, Sugano N, Iwana D, Kitada M
- 17:44 Kinematics based computer assisted surgery for total hip replacement: results of 88 procedures with computed tomography assessment of implant position
Pinoit Y, Roumazielle T, Laffargue P, Migaud H
- 17:51 DISCUSSION

CAOS-International Banquet

20:00 CAOS-INTERNATIONAL BANQUET

The Banquet will take place in Versailles Convention Center. It will feature the following highlights:

- Presentation of the Maurice E. Müller Award for Excellence in Computer Assisted Surgery
- Introduction of the new CAOS-International President
- Invitation to the 11th Annual Meeting of CAOS-International in London in 2011

Saturday, June 19, 2010

8:00 REGISTRATION

Session XVI – Total Knee Arthroplasty, Part 3 – Broader Issues

Chairmen: Yoram Weil and Randy E. Ellis

- 8:30 Genu recurvatum in total knee arthroplasty
Krackow KA, Phillips MJ, McGrath BE, Bayers-Thering M
- 8:37 Computer-assisted surgery system for patellar resection
Fu C, Wai J, Lee E, Hutchison C, Myden C, Batuyong E, Anglin C
- 8:44 The tibial cut orientation in total knee arthroplasty – conventional vs. computer navigated
Deep K
- 8:51 DISCUSSION
- 9:00 Problems, obstacles and complications in more than 700 computer assisted knee replacements
Manzotti A, Chemello C, De Bartolomeo O, Piccinini D, Confalonieri N
- 9:07 Is knee computer assisted surgery a standard procedure for beginner or expert surgeons?
Confalonieri N, De Bartolomeo O, Chemello C, Manzotti A
- 9:14 First steps in the development of a remote monitor of knee range of motion
Vignier S, Martin P, Claasen C, Murray-Smith R, Picard F
- 9:21 DISCUSSION

Session XVII – ACL

Chairmen: Eun Kyoo Song and Christopher Plaskos

- 9:30 Repeatability of a method to evaluate knee ligaments lengths during flexion-extension
Pillet H, Bergamini E, Hausselle J, Thoreux P, Cappozzo A, Skalli W
- 9:37 Navigated anterior cruciate ligament replacement. An experimental validation study
Jenny JY, Ciobanu E, Diesinger Y
- 9:44 Navigation-assisted assessment of rotational and translational stability of various ACL graft types
Koh JL, Murray M
- 9:51 DISCUSSION
- 10:00 In-vivo stability and clinical comparison of anterior cruciate ligament reconstruction using low or high femoral tunnel positions
Seon JK, Song EK, Jeong MS, Park JK
- 10:07 Computer assisted ACL reconstruction versus conventional ACL reconstruction: a randomized clinical trial
Meuffels DE, Reijman M, Verhaar JAN
- 10:14 DISCUSSION

Coffee Break and Poster Session – Part 5

- 10:20 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.
- 104) Change of the grounding point on the sole of the foot after high tibial osteotomy
Hideo K, Nobuhiko S, Kazuo Y, Asaki H, Naoki S
- 105) Computer assisted surgery (CAS) in curettage of bone tumors: a new application of CAS in orthopedics
Gerbers JG, Jutte PC

- 106) The effect of surgical led lights on the accuracy of navigation systems
Yabuta YK, Takao TM, Nakasone NS, Sakai ST, Nishii NT, Yoshikawa YH, Sugano SN
- 107) Six degree of freedom load measurements in the hexapod external fixator
Wendlandt R, Seide K, Schulz AP, Juergens C
- 108) Distortion corrected electromagnetic needle tracking for spine interventions
fElfring R, De La Fuente M, Penzkofer T, Radermacher K
- 109) Contribution to the elaboration of a new co-evolutive technical-clinical design process in MIS
Thomann G, Tonetti J, Rasoulifar R, Villeneuve F, Di Donato A
- 110) What difference do the stylus, trackers, and screen layout make in CAOS adoption?
Brewster JB, Yakish SD, Lyytinen KL
- 111) A comprehensive computer-assisted application for diagnosis, planning and conduction of navigated joint preserving surgery in patients with femoroacetabular impingement
Puls M, Ecker TM, Tannast M, Steppacher S, Bastian JD, Keel M, Siebnrock KA, Kowal JH
- 112) The rationale and validation of an automated web-based electronic data capture measurement tool
Stulberg SD, Yaffe M, Villacis DC, Bart G, Greene S
- 113) Accuracy of 3D fluoroscopic navigation system using a flat panel detector-equipped C-arm
Takao, M, Nishii, T, Sakai, T, Yabuta, K, Yoshikawa, H, Sugano, N
- 114) Sterilizability evaluation of strain gauges for the use in an intraoperative environment
Niggemeyer M, Ulrich N, Heger S, Radermacher K, Mokwa W
- 115) Innovative graphical user interface for 6-DOF navigation tasks
Coigny F, Uhlinger R, Schkommodau E
- 116) Diagnostic radiograph based 3D bone reconstruction and pose estimation framework
Gamage P, Xie SQ

Session XVIII – Imaging & Tracking

Chairmen: Eric Stindel and Karl-Heinz Widmer

- 10:50 Clinical evaluation of a fluoroscopy based aiming device (Surgix) – first clinical results
Kraus MD, Schöll H, Riepl C, Bischoff M, Gebhard F
- 10:57 Femoral and tibial torsions evaluation from a fast 3D reconstruction method using biplanar X-rays
Chaibi Y, De Guise JA, Cresson T, Nizard R, Skalli W
- 11:04 Influence of optical tracking markers on localization accuracy
Linke S, Elfring R, Buschmann C, Radermacher K
- 11:11 Initial cadaveric and clinical results of an accelerometer based pinless navigation system for the tibial resection in TKR
Levi G, Citak M, Scuderi GR, Suero EM, Mayman DJ, Kang MN
- 11:18 DISCUSSION

Session IXX – Spine, Part 2 – New Technologies

Chairmen: Timo Laine and Brian L. Davies

- 11:30 A surgical performance comparison of an uncertainty visualization method with application to pedicle screw insertion
Simpson AL, Vasarheyli EM, Borschneck DP, Ellis RE, Ma B, Stewart AJ
- 11:37 Construction of a statistical shape model of lumbar vertebrae and its application in reconstructing a 3D model from a single lateral fluoroscopic image
Zheng G, Nolte LP, Ferguson SJ
- 11:44 Improvement of posterior wedge osteotomy technique is correlated with an optimal sagittal planning program. Peri-operative O-arm and navigation allow controlling the peri-operative correction
Le Huec JC, Aunoble S, Hauger O, Challali M, Bourghli A
- 11:51 Navigated percutaneous lumbosacral fusion: a feasibility study using 3D surgical simulation
Yu W, Bünger CE

11:58 DISCUSSION

Round Table II – CAS for THR

12:10 Chairman: Eric Stindel
Participants: Justin Cobb, Nubuhiko Sugano, Henry Judet

Scientific Awards Ceremony

12:40 Best clinical podium and best clinical poster presentation awards
Sponsored by B. Braun Aesculap

Best technical podium and best clinical poster presentation awards
Sponsored by NDI Europe GmbH and CAOS-International

Announcement: CAOS-International Travel Fellowships
Antony Hodgson

Closing

12:55 Closing remarks
Philippe Merloz

Venue Information

Venue Palais des Congrès de Versailles (Versailles Convention Center)
 Place du Château
 10, rue de la Chancellerie
 78 000 Versailles
 France
<http://www.viparis.com/>
 Phone: +33 1 30 97 89 00
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During the Meeting CAOS2010@CAOS-International.org

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in Computer Assisted Surgery*

Exhibitors and other Sponsors (in alphabetic order)



Workshop Sponsors (in alphabetic order)



CAOS 2011

Please mark your calendars:



Notes

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