



THE 19TH ANNUAL SYMPOSIUM OF THE INTERNATIONAL
SOCIETY FOR TECHNOLOGY IN ARTHROPLASTY

ISTA 2006

OCTOBER 6-9, 2006

THE ROOSEVELT HOTEL

MADISON AVENUE AND 45TH STREET
NEW YORK CITY



PROCEEDINGS BOOK

Symposium Objectives:

- Evaluate new technologies for joint replacement, implant design and materials or biological solutions.
- Interact with and learn from world-renowned orthopaedic surgeons and orthopaedic researchers.

Program Chairs: Chitranjan S. Ranawat, M.D., Lenox Hill Hospital, New York
Peter S. Walker, Ph.D., New York University/Hospital for Joint Diseases



ISTA 2006

The 19th Annual Symposium of The
International Society for Technology in
Arthroplasty

October 6-9, 2006

The Roosevelt Hotel, New York City

PROCEEDINGS BOOK

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- Friday, October 6	
- Saturday, October 7	
- Sunday, October 8	
- Monday, October 9	
Invited Lectures / Oral Presentations	22-117
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Welcome Message

Dear Colleagues,

Welcome to New York City for ISTA 2006!

In recent years, there has been a significant expansion in the introduction of technology to joint arthroplasty, impacting design, materials, surgical technique, and outcome evaluation. Included among these technologies are sophisticated numerical analysis for design and functional simulation, materials processing methods which dramatically change the wear resistance and mechanical properties, computer-assisted surgery such as navigation and other innovative applications of computers, minimally-invasive surgical techniques and their effect on short-term and long-term outcomes, advanced imaging for determining joint function, and even instrumented knee joints for determining the very forces and moments during a range of activities.

The ISTA 2006 Annual Symposium is the perfect opportunity for all who are involved with these important areas of orthopaedics, to interact for the exchange of ideas, for the critical evaluation of the various new technologies, and for the formulation of future directions. It is anticipated that this Symposium will make important contributions to the global progress of artificial joint technology in the coming years.

As one of the United States' most remarkable places, New York City has so much to offer, from its beautiful skyline and historical landmarks to its multicultural atmosphere, from its extravagant and on-the-sidewalk shopping opportunities to its extensive offerings on the stage and in avant-garde nightspots. We hope every participant will enjoy the city's enchanting autumn season and we encourage everyone to make the most of what New York has to offer.

We commend all of the ISTA 2006 participants and exhibitors who have come together to exchange their recent research in artificial joint technology, and thank profusely all of those organizations who have contributed in many different ways to the creation of this Symposium.

Finally, we will do everything possible to make your stay a positive experience both scientifically and socially, and we invite you to ask us for any help you need on any aspect of your stay in New York.

Chitranjan S. Ranawat, MD

Peter S. Walker, Ph.D.

Program Chairs, 19th Annual Symposium of ISTA

ISTA Board of Directors

Takashi Nakamura, MD, Ph.D., Kyoto	(ISTA President)
Peter Walker, Ph.D., New York City, NY	(1 st Vice President)
Yves Catonne, MD, Paris, France	(2 nd Vice President)
Giorgio Gasparini, MD, Rome, Italy	(1 st Past President)
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Peter Thümler, MD, Düsseldorf, Germany	(Board Member 2006)
Robert Streicher, Ph.D., Thalwil, Switzerland	(Board Member 2006)
Sam Nasser, MD, Warren, MI	(Board Member 2008)
Hani Haider, Ph.D., Omaha, NE	(Board Member 2008)

ISTA 2006 Organizing Committee

Co-Chairmen:	Chitranjan S. Ranawat, MD Chief, Department of Orthopaedic Surgery Lenox Hill Hospital, New York
	Peter S. Walker, Ph.D. Professor, Department of Orthopaedic Surgery New York University – Hospital for Joint Diseases, New York
Organizing Committee:	Steve Harwin, MD, Beth Israel Hospital, New York Ed Adler, MD, NYU/Hospital for Joint Diseases Joe Fetto, MD, NYU/Hospital for Joint Diseases Amar Ranawat, MD, Lenox Hill Hospital, New York Bill Macaulay, MD, NY Presbyterian Hospital Ted Blaine, MD, NY Presbyterian Hospital
Co-Sponsoring Institutions:	Joseph D. Zuckerman, MD, Chairman NYU Hospital for Joint Diseases New York University School of Medicine
	Louis U. Bigliani, MD Professor and Chairman of Orthopaedic Surgery Director of Orthopaedic Surgery, Columbia Presbyterian Hospital
	Thomas P. Sculco, MD Surgeon-in-Chief, Hospital for Special Surgery Professor, Weill Medical College of Cornell University

Grand Ballroom
The Roosevelt Hotel

Entrance to meeting space

5

5
Encore
Medical

4
Biomet
Orthopedics

3
Zimmer

2
Kinamed

6

Japan Medical
Materials Corp.

7
Smith & Nephew

8
Depuy

Entrance to exhibit area

9

Finsbury
Orthopaedics

10
BrainLAB

11
Wright
Medical

12
Exactech

13
Kendal/Tyco

14
Synvasive Technology

15

Stryker
Orthopaedics

Exhibitor Layout

T hank You

Silver Sponsors



Exhibitors

Biomet Orthopedics, Inc.
DePuy
Exactech
Japan Medical Materials
Smith & Nephew
Synvasive Technology
Zimmer

BrainLAB, Inc.
Encore Medical
Finsbury Orthopaedics
Kinamed
Stryker—Orthopaedics
Wright Medical Technology

A Special Thanks to:

OREF Orthopaedic Research & Education Foundation and
Kendal/Tyco for educational grants.

The **Arthritis Foundation, New York Chapter**, and the
Bone & Joint Decade for publicity and collaboration of the Public
Symposium.



NEW YORK CHAPTER



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Social Events

Presidential Reception

Friday, October 6 6:00 pm—7:00 pm
Complimentary
Palm Foyer—Lobby Level
The Roosevelt Hotel

Gala Awards Dinner

Sunday, October 8 7:00 pm-10:00 pm
Tickets required. Tickets can be obtained from
the ISTA Registration desk.
Palm Foyer/Terrace Ballroom — Lobby Level
The Roosevelt Hotel

ISTA 2006 Program at a glance

	October 6 (Friday)	October 7 (Saturday)		
		Grand Ballroom	Terrace Ballroom	
7:00		Registration (Grand Ballroom Foyer)—6 pm Speaker Ready Room (Plaza Room)—6 pm		
8:00		Exhibitors (Grand Ballroom Foyer)—6 pm Poster Display (Promenade/State Suites)—6 pm		
9:00		A1—Total Hip-CDH <i>Chair: Hirotaka Iguchi</i> 4 presentations 10 min each	B1—Shoulder & Ankle Replacement <i>Chairs: Louis Bigliani</i> <i>SG Karas</i> 6 presentations 10 min each	
10:00		Coffee Break/Exhibitors/Posters	Coffee Break/Exhibitors/Posters	
11:00		A2—Total Hip Mechanics <i>Chairs: Hugh Cameron</i> <i>Phil Noble</i> 7 presentations 10 min each	B2—Surface Replacement <i>Chairs: Riyaz Jinnah</i> <i>Bill Macaulay</i> 6 presentations 10 min each	
12:00		Sponsored Luncheon Lecture <i>Encore Medical</i> <i>Synvasive</i>	Sponsored Luncheon Lecture (Grand Ballroom) <i>Encore Medical</i> <i>Synvasive</i>	
1:00			A3—Total Hip Stem Design <i>Chairs: Nico Verdonshot</i> <i>Joe Fetto</i> 5 presentations 10 min each	B3—Nanotechnology <i>Chairs: Rob Streicher</i> <i>Clifford Colwell, Jr.</i> <i>Invited: Robt Poggie & Todd Boyce</i> 6 presentations 10 min each
2:00			Coffee Break/Exhibitors/Posters	
3:00			A4—Dealing with Infection <i>Chairs: Kevin Garvin</i> <i>Bernard Stulberg</i> 5 presentations 10 min each **Ernesto De Santis Award Paper**	B4—Spinal Implants <i>Chair: Frank Cammisa</i> <i>Invited: Tony Valdevit & Fabien Bitan</i> 3 presentations - 10 min each
4:00			A5—Application of Knee Mechanics to TKR Design <i>Chairs: Phil Noble/Ed Adler</i> <i>Invited: Clifford Colwell, Jr., Jonathan Black</i> 8 presentations 10 min each	
5:00	ISTA Registration (Grand Ballroom Foyer) Speaker Ready Room (Plaza Suite) Exhibitor Set-up (Grand Ballroom Foyer) Poster Set-up (Promenade/State Suites)	Exhibitor/Posters/Registration ends 6:00 pm		
6:00	Presidential Reception (Palm Foyer—Lobby Level)			
7:00				
8:00				

ISTA 2006 Program at a glance

October 8 (Sunday)		October 9 (Monday)	
Grand Ballroom	Terrace Ballroom	Grand Ballroom	
			—7:00
Registration (Grand Ballroom Foyer)—6 pm Speaker Ready Room (Plaza Room)—6 pm		Registration (Grand Ballroom Foyer)—6 pm Speaker Ready Room (Plaza Room)—6 pm	
			—8:00
A6—Hard Bearings <i>Chairs: Jonathan Black Jeff Taylor</i> <i>Invited: Mike Manley</i> 6 presentations 10 min each	Exhibitors / Poster Display	Exhibitors / Poster Display	
Coffee/Exhibitors/ Posters	B5—Fixation & Revision <i>Chairs: Raj Sinha Ted Blaine</i> 7 presentations 10 min each	A10—HI-Performance Knees—HI-Flexion <i>Chairs: Rick Komistek Giorgio Gasparini</i> <i>Invited: Giorgio Gasparini</i> 8 presentations 10 min each	—9:00
A7—Polyethylene Bearings <i>Chair: Al Burstein/Takashi Nakamura</i> <i>Invited: Orhun Muratoglu Richard Laskin</i> 10 presentations 10 min each **HAP Paul Award**	Coffee/Exhibitors/Posters	Coffee Break/Exhibitors/Posters	—10:00
Sponsored Luncheon Lecture <i>Zimmer and Depuy</i>	Exhibitors (Grand Ballroom Foyer)—3 pm	A11—HI-Performance Knees— Wear and Mobiles <i>Chair: Scott Banks</i> 3 presentations 10-15 min each	—11:00
A8—Computer-Assisted Surgery—Hip <i>Chair/Invited: Bill Bargar/Raj Sinha</i> 7 presentations 10 min each	Poster Display (Promenade/State Suites) —3 pm	A12—Ligament Balancing <i>Chairs: James Elting Chit Ranawat</i> <i>Invited: Carl Deirmengian</i> 5 presentations 10 min each	—12:00
A9—MIS—HIP <i>Chairs: Bill Macaulay Carl Deirmengian</i>			—1:00
Coffee/Exhibitors/Posters		Public Symposium on Joint Replacement Introduction: Dr. Linda Russell, Arthritis Foundation Patient Perspectives in Total Knee (video) <i>Chit Ranawat</i> Choices in Total Joint Designs <i>Chair: Peter Walker</i> <i>Invited: Kelly Vince, Sarah Muirhead Allwood, Fred Jaffe & Joe Fetto</i> Surgical Techniques & Pain Management <i>Chair: Tom Sculco</i> <i>Invited: Richard Laskin, Kris Keggi & Fred Jaffe</i> Effectiveness of Rehabilitation <i>Invited: Lynn Snyder-Mackler, Carol Mancuso & James Elting</i>	—2:00
	B6—Computer-Assisted Surgery—Knee <i>Chairs: David Stulberg/Yves Jenny</i> <i>Invited: Peter Bonutti/David Stulberg</i> 7 presentations 10 min each	Summary of Symposium/Adjournment	—3:00
	B7—MIS—Knee <i>Chairs: Richard Laskin/Jean Aubaniac</i> <i>Invited: Fred Tria, Jean Aubaniac & Keith Berend</i> 6 presentations 10 min each		—4:00
			—5:00
			—6:00
			—7:00
Gala Awards Dinner Presentation—Lifetime Achievement Award Terrace / Palm Ballroom (Lobby Level)			—8:00

REVISED AGENDA

INTERNATIONAL SOCIETY FOR TECHNOLOGY IN ARTHROPLASTY
OCTOBER 6-9, 2006
The Roosevelt Hotel, NEW YORK CITY

AGENDA

Friday, October 6, 2006

3:00 pm – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
3:00 pm – 6:00 pm	Exhibitor Set-Up	Grand Ballroom Foyer
3:00 pm – 6:00 pm	Poster Set-Up	Promenade/State Suites
6:00 pm – 7:00 pm	Presidential Reception	Palm Foyer

Saturday, October 7, 2006

7:00 am – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
8:00 am – 5:00 pm	Exhibitors	Grand Ballroom Foyer
8:00 am – 5:00 pm	Poster Display	Promenade/State Suites
9:00 am – 10:00 am	A1—TOTAL HIP – CDH Chairs: Hirotaka Iguchi	Grand Ballroom Mezzanine Level
9:00 am – 9:05 am	Session overview and objectives (Iguchi)	
9:05 am – 9:15 am	A1-1—Eleven Years Clinical Experience of Lateralflare™ Cementless Stems for Japanese Patients Aided by 3 ^D Computer Preoperative Planning System – CAD-CAM Custom Stem and Off-the Shelf Revelation® Stem H Iguchi, T Otsuka, Y Taneda, Y Yoshida, T Kawanishi, N Watanabe, Y Shibata, T Hirade, PS Walker, J Fetto	
9:15 am – 9:25 am	A1-2—Metal-on-Metal Cementless Total Hip Arthroplasty With Conical Stem for Arthritis Following Congenital Hip Disease R Binazzi, A Bondi, A Manca, M Bondi	
9:25 am – 9:35 am	A1-3—Characteristics of the Femoral Geometry of Developmental Dysplastic Hips and the Surgical Strategy – From the Treatment of Japanese Arthritic Hips With Lateralflare Stems H Iguchi, T Otsuka, Y Taneda, Y Yoshida, T Kawanishi, N Watanabe, Y Shibata, T Hirade, P S Walker, J Fetto	
9:35 am – 9:45 am	A1-4—2 – 18 Year Results in CDH Total HIP Replacements H U Cameron, T McTighe	
9:45 am – 10:00 am	Panel discussion/Q&A	
10:00 am – 10:20 am	Coffee Break/Exhibitors/Poster Display	

10:20 am –12:00 noon	A2—TOTAL HIP MECHANICS Chairs: Hugh Cameron, Phil Noble	Grand Ballroom Mezzanine Level
10:20 am – 10:25 am	Session overview and objectives (Cameron)	
10:25 am – 10:35 am	A2-1—Model-Based RSA of a Hip Stem Using Geometrical Shape Models B L Kaptein, E R Valstar, C W Spoor, B C Stoel, H H Reiber, P M Rozing	
10:35 am – 10:45 am	A2-2—Dislocation Rate in Large Diameter Metal-on-Metal Hip Replacement H Ziaee, J Daniel, C Pradhan, D J W McMinn	
10:45 am – 10:55 am	A2-3—Controlled Restoration of Hip Mechanics in THA G Cipolletti, E Cheal, T Tkach, W Low, T McTighe	
10:55 am – 11:05 am	A2-4—Three Dimensional Analysis of Range of Motion and Virtual Debridement in Patients with Femoro-Acetabular Impingement - T M Ecker, M Tannast, S B Murphy, M Kubiak-Langer, F Langlotz, K A Siebenrock	
11:05 am – 11:15 am	A2-5—Effects of geometry of the femoral component on the impact force and intraoperative fracture during THA - T Shinoda	
11:15 am – 11:25 am	A2-6—The Effects of Component Positioning on Bony Impingement in Total Hip Arthroplasty - W B Kurtz, SS Murphy	
11:25 am – 11:35 am	A2-7—In Vivo Assessment of Hip Joint Kinematics for Variable Bearing Surfaces Using Fluoroscopy, Accelerometer and Sound Sensors H E Cates, R D Komistek, D A Glaser	
11:35 am – 12:00 noon	Panel discussion/Q&A	
12:00 noon – 1:05 pm	Sponsored Luncheon Lectures Basic Science & Clinical Outcomes – Revelation Hip Joseph Fetto, M.D. – Encore Medical The Use of Sensing Technology to Develop Reliable Soft Tissue and Gap Balance in TKA - Martin Roche, M.D. - Synvasive Technology	Grand Ballroom Mezzanine Level
1:05 pm – 2:20 pm	A3—TOTAL HIP STEM DESIGN Chairs: Nico Verdonschot, Joe Fetto	Grand Ballroom Mezzanine Level
1:05 pm – 1:10 pm	Session overview and objectives (Verdonschot)	
1:10 pm – 1:20 pm	A3-1—Excellent Mid-Term Results With Tapered Modular Conical Stems for Femoral Revision With Severe Bone Stock Loss R Binazzi, A Bondi, A Manca, P G Marchetti	
1:20 pm – 1:30 pm	A3-2—Micromotion and Interfacial Gaps Between Femur and Cementless Stem: Finite Element Models -Y Park, D-O Choi, K-B Lim, D S Hwang, Y-S Yoon	
1:30 pm – 1:40 pm	A3-3—New Generation of Isoelastic Femoral Stem Prosthesis – Intermediate- Term Follow-Up - G V Kuropatkin	
1:40 pm – 1:50 pm	A3-4—Jack and the Beanstalk or the Use of Long Stems in Primary Total Hip Replacements - H U Cameron, T McTighe	
1:50 pm – 2:00 pm	A3-5—Lateral Flare Customized Uncemented Stems in Patients Younger Than 55 Years of Age - A 6 to 12 Year Prospective Study - A Leali, J F Fetto	
2:00 pm – 2:20 pm	Panel discussion/Q&A	

2:20 pm – 2:35 pm	Coffee Break/Exhibitors/Posters	
2:35 pm – 4:00 pm	A4—DEALING WITH INFECTION Chairmen: Kevin Garvin, Bernard Stulberg	Grand Ballroom Mezzanine Level
2:35 pm – 2:40 pm	Session overview and objectives (Stulberg)	
2:40 pm – 2:50 pm	Overview of Treatments – (Barry Brause)	
2:50 pm – 3:00 pm	Ernesto De Santis Award Paper: A4-1—Vancomycin Stably and Permanently Bonded to Implant Inhibits Bacterial Surface Colonization and Infection Development Valentin Antoci Jr. ¹ , Samuel B. King ¹ , Christopher S. Adams ¹ , Javad Parvizi ^{1,2} , Russell J. Composto ^{3,4} , Theresa A. Freeman ¹ , Eric Wickstrom ⁵ , Allen R. Zeiger ⁵ , Paul Ducheyne ^{3,6} , Irving M. Shapiro ^{1,3,5} , Noreen J. Hickok ^{1,5†}	
3:00 pm – 3:10 pm	A4-2—Good Longevity, Good Function, What Will the Technologists Do About THR Infection? - KL Garvin, CR Mahoney, F Namavar, H Haider	
3:10 pm – 3:20 pm	A4-3—Dermabond Efficacy in Computer Assisted Total Joint Replacement Wounds—ML Swank, A Miller, LL Korbee	
3:20 pm – 3:30 pm	A4-4—Infection-Specific Biomarkers in the Synovial Fluid C Deirmengian, J Lonner, R Booth, Jr.	
3:30 pm – 3:40 pm	A4-5—A Novel Technique in the Treatment of Infected Total Knee Arthroplasty V Antoci, MJ Phillips, KA Krackow	
3:40 pm – 4:00 pm	Panel discussion/Q&A	
4:00 pm – 5:40 pm	A5—APPLICATION OF KNEE MECHANICS TO TKR DESIGN Chairmen: Phil Noble, Ed Adler Invited: Clifford Colwell, Jr.	Grand Ballroom Mezzanine Level
4:00 pm – 4:05 pm	Session overview and objectives (Adler)	
4:05 pm – 4:15 pm	Forces in the Knee Joint – Clifford Colwell, Jr.	
4:15 pm – 4:25 pm	A5-1—Polyethylene Contact Stresses After Total Knee Arthroplasty Computed In Vivo —DD D’Lima, SA Banks, D Zhao, BJ Fregly, CW Colwell, Jr.	
4:25 pm – 4:35 pm	A5-2—Effect of Sampling Rate on In Vivo Kinematic Analysis of Total Knee Arthroplasty in Deep Knee Bending Motion—T Tetsuya, T Yamazaki, A Yoshida, M Tanaki, T Watanabe, H Yoshikawa, K Sugamoto	
4:35 pm – 4:45 pm	A5-3—In-Vivo Quantification of the Effect of Slip and Friction at the Knee Joint A Sharma, RD Komistek, JS Outten, DD D’Lima, CR Colwell, Jr.	
4:45 pm – 4:55 pm	A5-4—Total Knee Arthroplasty Following High Tibial Osteotomy S Ripanti, S Campi, S Marin, P Mura, A Campi	
4:55 pm – 5:05 pm	A5-5—Thigh-Calf Contact Forces in Deep Knee Flexion J Zelle, M Barink, R Loeffen, M DeWall Malefijt, N Verdonschot	
5:05 pm – 5:15 pm	A5-6—Surface Guided Total Knee Design for Normal Kinematics PS Walker, G Yildirim, J Sussman-Fort, J Boyer	
5:15 pm – 5:30 pm	Panel discussion/Q&A	
5:30 pm—5:40 pm	A5-7—Future of Total Joints—Application of Knee Mechanics—J Black	

Saturday, October 7, 2006

7:00 am – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
8:00 am – 5:00 pm	Exhibitors	Grand Ballroom Foyer
8:00 am – 5:00 pm	Poster Display	Promenade / State Suites
9:00 am – 10:20 am	B1—SHOULDER & ANKLE REPLACEMENT Chairmen: Louis Bigliani, SG Karas Invited: Ted Blaine	Terrace Ballroom Lobby Level
9:00 am – 9:05 am	Session overview and objectives (Bigliani)	
9:05 am – 9:15 am	MIS For Shoulder Replacement T Blaine	
9:15 am – 9:25 am	B1-1—The Early US Experience of Reverse Shoulder Arthroplasty: Indications, Technique and Results S G Karas, M Frankle, R J Hawkins	
9:25 am – 9:35 am	B1-2—Geometric Analysis of the Grammont Reverse Shoulder Prosthesis: An Evaluation of the Relationship Between Prosthetic Design Parameters and Clinical Failure Modes - C Roche, P H Flurin, T Wright, J Zuckerman	
9:35 am – 9:45 am	B1-3—Computer-Aided Shoulder Arthroplasty – Initial Clinical Experience T B Edwards, G M Gartsman, W S Morris, V K Sarin	
9:45 am – 9:55 am	B1-4—Validation of Navigated Glenoid Component Placement: An In-Vitro Pilot Study —PW De Bruin, CP Botha, B Stoel, ER Valstar, PM Rozing	
9:55 am – 10:05 am	B1-5—Current Status of Total Ankle Replacement—J DeOrio	
10:05 am – 10:20 am	Panel discussion/Q&A	
10:20 am – 10:40 am	Coffee break/Exhibitors/Poster Display	
10:40 am -12:00 noon	B2—SURFACE REPLACEMENT Chairmen: Riyaz Jinnah, Bill Macaulay	Terrace Ballroom Lobby Level
10:40 am – 10:45 am	Session overview and objectives (Jinnah)	
10:45 am – 10:55 am	B2-5—Outcomes of Limited Femoral Resurfacing for Osteonecrosis of the Femoral Head—A Rajadhyaksha, C Kuhn, S Zelicof	
10:55 am – 11:05 am	B2-1—Is the Birmingham Hip Resurfacing Arthroplasty Conservative? S Muirhead-Allwood, CA Patel, P Mohandas	
11:05 am – 11:15 am	B2-2—X-Ray Analysis of the Femoral Component in Resurfacing Hip Arthroplasty – A Comparison of Two Different Resurfacing Systems - T Kabata, T Maeda, D Sakagoshi, E Sawamura, T Ando, T Horii, S Yagishita, T Katsuro	
11:15 am – 11:25 am	B2-3— Early Experience With a Resurfacing: The Importance of Understanding the Learning Curve - R Jinnah, H Pandit, P McLardy-Smith	
11:25 am – 11:35 am	B2-4—Revisions in Hip Resurfacing Arthroplasty R DeHaan, E Su, KA DeSmet	

11:35 am – 11:45 am	B2-6—Modern Hip Resurfacing in the Treatment of Femoral Head Osteonecrosis J Daniel, C Pradhan, H Ziaee, PB Pynsent, DJW McMinn	
11:45 am – 12:00 noon	Panel discussion/Q&A	
12:00 noon – 1:05 pm	Sponsored Luncheon Lecture Basic Science & Clinical Outcomes – Revelation Hip Joseph Fetto, M.D. – Encore Medical	Grand Ballroom Mezzanine Level
	The Use of Sensing Technology to Develop Reliable Soft Tissue and Gap Balance in TKA - Martin Roche, M.D. - Synvasive Technology	
1:30 pm - 2.55 pm	B3—NANOTECHNOLOGY Chairmen: Clifford Colwell, Jr. Invited: Robt Poggie, Todd Boyce	Terrace Ballroom Lobby Level
1 :30 pm – 1 :35 pm	Session overview and objectives (Colwell)	
1 :35 pm – 1 :45 pm	Properties of Trabecular Metal - Robert Poggie	
1 :45 pm – 1 :55 pm	Prospects for Osteochondral Grafts - Gerard Ateshian, Clark Hung	
1 :55 pm – 2 :05 pm	Biological Grafts - Todd Boyce	
2 :05 pm – 2 :15 pm	B3-1—Increased Bone Ingrowth on a Biomimetic Nanocrystalline Apatite Surface J C Hermida, X F Yang, P Li, S Patil, C W Colwell, Jr , D D D’Lima	
2:15 pm – 2:25 pm	B3-2—Preliminary Studies of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Ultra-Hydrophilic Hard Adherent Ceramic F Namavar, J D Jackson, J G Sharp, S Varma, K L Garvin, H Haider	
2:25 pm – 2:35 pm	B3-3—The Efficacy of Orthobond Coatings in the Biological Fixation of Metallic Implants—F Shannon, J Cottrell, X-H Deng, S Doty, R Warren, T Wright	
2:35 pm – 2:55 pm	Panel discussion/Q&A	
2:55 pm—3:50 pm	B4—SPINAL IMPLANTS Chairman: Frank Cammisa Invited: Tony Valdevit, Fabien Bitan	Terrace Ballroom Lobby Level
2:55 pm – 3:00 pm	Session overview and objectives (Cammisa)	
3:00 pm – 3:10 pm	Surgical Status of Disc Replacements - Fabien Bitan	
3:10 pm – 3:20 pm	Design & Testing of Disc Replacements - Tony Valdevit	
3:20 pm – 3:30 pm	B4-1—In Vivo 3D Dynamic Determination of Normal, Degenerative and Fused Cervical Spines - F Liu, RD Komistek, MR Mahfouz, J Cheng	
3:30 pm – 3:50 pm	Panel discussion/Q&A	

**INTERNATIONAL SOCIETY FOR TECHNOLOGY IN ARTHROPLASTY
OCTOBER 6-9, 2006, NEW YORK CITY
The Roosevelt Hotel**

SUNDAY, October 8, 2006

7:00 am – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
8:00 am – 3:00 pm	Exhibitors	Grand Ballroom Foyer
8:00 am – 3:00 pm	Poster Display	Promenade / State Suites
8:00 am – 9:25 am	A6—HARD BEARINGS Chairmen: Jonathan Black, Jeff Taylor Invited: Mike Manley	Grand Ballroom Mezzanine Level
8:00 am – 8:05 am	Session overview and objectives (Taylor)	
8:05 am – 8:15 am	Prospects for ceramics - Mike Manley	
8:15 am – 8:25 am	A6-1—Maternal and Umbilical Cord Blood Levels of Cobalt and Chromium in Women With Metal-Metal Resurfacings - H Ziaee, J Daniel, C Pradhan, DJW McMinn	
8:25 am – 8:35 am	A6-2—Environmental Phase Stability and Residual Stress Fields in Zirconia Alumina Matrix Composite - K Yamada, G Pezzotti	
8:35 am – 8:45 am	A6-3—“The Squeaking Hip;” An Under-Reported Phenomenon of Ceramic-on-Ceramic Total Hip Arthroplasty CA Jarrett, AS Ranawat, M Bruzzone, JA Rodriguez, CS Ranawat	
8:45 am – 8:55 am	A6-4—The Different Effects of Serum and Whole Blood on Friction in Metal-Metal Bearings of Different Clearances - A Kamali, JT Daniel, SS Saravi, M Youseffi, R Ashton, T Band, DJW McMinn	
8:55 am – 9:05 am	A6-5—Two to Eight Year Follow-Up Experience With Ceramic Ceramic Total Hip Arthroplasty - SB Murphy, TM Ecker, M Tannast	
9:05 am – 9:25 am	Panel discussion/Q&A	
9:25 am – 9:40 am	Coffee Break/Exhibitors/Posters	
9:40 am -11:40 pm	A7—POLYETHYLENE BEARINGS Chairmen: Al Burstein, Takashi Nakamura Invited: Orhun Muratoglu, Richard Laskin	Grand Ballroom Mezzanine Level
9:40 am – 9:45 am	Session overview and objectives (Burstein)	
9:45 am – 9:55 am	“HAP” Paul Award A7-1—Tocopheral Stabilization of Irradiated UHMWPE: A Second Generation Highly Cross-Linked UHMWPE with Improved Fatigue Resistance for Total Knees OK.Muratoglu, E Oral, A Malhi, K Wannomae	

9:55 am – 10:05 am	Highly Cross-Linked UHMWPE With Improved Fatigue Resistance for Total Joint Arthroplasty – E Oral, AS Malhi, W Wannomae, OK Muratoglu	
10:05 am – 10:15 am	Oxinium as a knee bearing material – Richard Laskin	
10:15 am – 10:25 am	A7-2—Magnetic Resonance Imaging in the Diagnosis and Management on Wear-Induced Peri-Prosthetic Inflammation and Osteolysis Following Total Hip Arthroplasty - H J Cooper, AS Ranawat, H G Potter, C S Ranawat	
10:25 am – 10:35 am	A7-3—The Wear Performance of a Flexible, Anatomically Loaded CFR-PEEK Hip Cup Design - S C Scholes, I A Inman, A Unsworth, E Jones	
10:35 am – 10:45 am	A7-4—Wear of Polyethylene Against Metal-Ceramic Composite Femoral Component: Effect of Aggressive Kinematic Conditions - K A Ezzet, J C Hermida, N Steklov, C W Colwell, Jr , W Clifford, D D D’Lima	
10:45 am – 10:55 am	A7-5—Large Diameter Femoral Heads on Highly Cross Linked Polyethylene: Minimum Three Year Results J A Geller, H Malchau, C Bragdon, M Greene, W H Harris, A A Freiberg	
10:55 am – 11:05 am	A7-6—Differences in Highly Cross-Linked Polyethylene Wear Between Second Generation Zirconia and Cobalt Chrome Femoral Heads - K Kawate, T Ohmura, H Kataoka, I Kawahara, K Tamai, T Ueha, Y Takakura	
11:05 am – 11:15 am	A7-7—Comparison of Acetabular Polyethylene Wear Rates Between Highly Crosslinked and Traditional Polyethylenes – A Minimum Five Year Follow-Up Study—A Rajadhyaksha, C Brotea, R Ramakrishnan, R Ramakrishnan, Y Cheung, C Kuhn, S Zelicof	
11:15 am – 11:25 am	A7-8—Surface and Bulk Properties of 2-Methacryloyloxyethyl Phosphorylcholine Grafted Cross-Linked Polyethylene - M Kyomoto, T Moro, T Konno, H Kawaguchi, Y Takatori, K Nakamura, N Yamawaki, K Ishihara	
11:25 am – 11:40 am	Panel discussion/Q&A	
11:40 am – 12:40 pm	Sponsored Luncheon Lectures Metasul Technology—Pascal-Andre Vendittoli, MD Claude Rieker, PhD—Zimmer Optimization of Cup Placement Using CAS and TAL - Michael Swank, MD, DePuy Orthopaedics	Grand Ballroom Mezzanine Level
12:40 pm – 2:05 pm	A8—COMPUTER-ASSISTED SURGERY – HIP Chairman: Bill Bargar, Raj Sinha Invited: Bill Bargar	Grand Ballroom Mezzanine Level
12:40 pm – 12:45 pm	Comparison of robotics versus navigation – Bill Bargar	
12:45 pm – 12:55 pm	A8-1—Total Hip Arthroplasty Performed Using Conventional and Computer-Assisted and Tissue-Preserving Techniques - SB Murphy, TM Ecker, M Tannast	
12:55 pm – 1:05 pm	A8-2—A Study of Sagittal Sacral Tilt as a Measure of Pelvic Inclination and Acetabular Version - WY Shon, SW Han, JH Yang, SG Gupta	
1:05 pm – 1:15 pm	A8-3—A Morphing Based Navigation System for Arthroscopic Femoroacetabular Impingement Surgery - RL Buly, BT Kelly, C Granchi, S Besson, C Plaskos	
1:15 pm – 1:25 pm	A8-4—In Vivo Comparison of Hip Mechanics for Subjects Implanted With a MIS or Traditional Surgical Technique - D Glaser, O Michael, RD Komistek, D Deqqis	
1:25 pm – 1:35 pm	A8-5—The Accuracy of Digital Templating in Primary Total Hip Arthroplasty SB Kantor, IM Tomek	

1:35 pm – 1:45 pm	A8-6—Preoperative Planning System of Total Hip Arthroplasty Y Yoshida, H Iguchi, T Kawanishi, Y Taneda, N Tanaka, N Watanabe, Y Shibata	
1:45 pm – 2:05 pm	Panel discussion/Q&A	
2:05 pm – 2:50 pm	A9—MIS-HIP Chairmen: Bill Macaulay, Carl Deirmengian	Grand Ballroom Mezzanine Level
2:05 pm – 2:10 pm	Session overview and objectives (Macaulay)	
2:10 pm – 2:15 pm	A9-1—Learning Curve in Less Invasive Total Hip Replacement (THR) RJ Sinha	
2:15 pm – 2:25 pm	A9-2—Comparison of Minimal Invasive Total Hip Replacement Versus Standard Total Hip Replacement With Conventional Jigs-Study of Revelation Hip System N Watanabe, Y Taneda, H Iguchi, H Okazaki, K Takagi, Y Yamashita	
2:25 pm – 2:35 pm	A9-3—Prospective Comparison Study of Clinical Data Between the Minimal Incision and Conventional Incision in Total Hip Arthroplasty N Takahira, K Uchiyama, S Takasaki, M Katano, M Itoman	
2:35 pm – 2:50 pm	Panel discussion/Q&A	
2:50 pm – 3:05 pm	Coffee Break/Exhibitors/Posters	
7:00 pm	Gala Awards Dinner Presentation of Lifetime Achievement Award	Terrace/Palm Ballroom

**INTERNATIONAL SOCIETY FOR TECHNOLOGY IN ARTHROPLASTY
OCTOBER 6-9, 2006, NEW YORK CITY
The Roosevelt Hotel**

SUNDAY, October 8, 2006

7:00 am – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
8:00 am – 3:00 pm	Exhibitors	Grand Ballroom Foyer
8:00 am – 3:00 pm	Poster Display	Promenade/State Suites
9:00 am – 10:35 am	B5—FIXATION AND REVISION Chairmen: Raj Sinha, Ted Blaine	Terrace Ballroom Lobby Level
9:00 am – 9:05 am	Session overview and objectives (Sinha)	
9:05 am – 9:15 am	B5-1—Trabecular Metal Tantalum Cups in THR G Gasparini, L G Magliocchetti, S Cerciello, M Vasso	
9:15 am – 9:25 am	B5-2—No Peri-Prosthetic Radiolucency at 10 Years Around a Pure Titanium Press-Fit Cup; Importance of Equatorial Fins for Initial Mechanical Stability R Binazzi, F Morici, V Vaccari, A Bondi, A Manca, P G Marchetti	
9 :25 am – 9:35 am	B5-3—Treatment of Pelvic Osteolysis in a Stable Cementless Cup With Liner Exchange - W Y Shon, S W Han, J H Yang, S G Gupta	
9:35 am – 9:45 am	B5-4—Short Term Results of Custom Triflange Acetabular Component for Massive Periacetabular Bone Loss in Revision Hip Arthroplasty M Wind, J Sorger, M Swank, L Korbee	
9:45 am – 9:55 am	B5-5—Dysplasia Birmingham Hip Resurfacing Arthroplasty for Deficient Acetabulae—J Daniel, C Pradhan, H Ziaee, P B Pynsent, D J W McMin	
9:55 am – 10:05 am	B5-6—Efficacy of Using Tibial Offset Stem in Revision Knee Arthroplasty T Sugimori, K G Vince, A Abdeen	
10:05 am – 10:15 am	B5-7—Tibial Stem Design in Revision Arthroplasty: Concerns Related to Tibial Fixation—B N Stulberg, J D Zadzilka	
10:15 am – 10:35 am	Panel discussion/Q&A	
10:35 am – 11:15 am	X3—LFIT Anatomic Heads—Why X3 Allows for the Use of Large Diameter John Dumbleton, Stryker	
11:15 am —11:40 am	Coffee Break/Exhibitors/Posters	
11:40 am – 12:40 pm	Sponsored Luncheon Lectures Metasul Technology—Pascal-Andre Vendittoli, MD Claude Rieker, PhD—Zimmer Optimization of Cup Placement Using CAS and TAL - Michael Swank, MD, DePuy Orthopaedics	Grand Ballroom Mezzanine Level
12:40 pm—3:05 pm	Coffee Break/Exhibitors/Posters	

3:05 pm – 4:35 pm	B6—COMPUTER-ASSISTED SURGERY – KNEE Chairmen: David Stulberg, Yves Jenny Invited: Peter Bonutti	Terrace Ballroom Lobby Level
3:05 pm – 3:10 pm	Session overview and objectives (Jenny)	
3:10 pm – 3:20 pm	MIS TKA with Computer Navigation: Nuisance or Necessity? - Peter Bonutti	
3:20 pm – 3:30 pm	B6-1—Learning Curve of a Navigation System for Total Knee Replacement – A Multicentric Study - J-Y Jenny, R Miehke, A Giurea	
3:30 pm – 3:40 pm	B6-2—Rotational Alignment of Femoral Component in TKA S Cerciello, M Vasso, G Milano, C Fabbriani	
3:40 pm – 3:50 pm	B6-3—Navigated Universal Knee Instrumentation: A Fast and Precise Method for Making All Femoral Cuts in Total Knee Arthroplasty AD Pearle, T Sculco, C Granchi, G Thau, C Plaskos	
3:50 pm – 4:00 pm	B6-4—Documentation and Post-Operative Analysis of Surgical Skills Through Real-Time Motion Recording of Navigated Arthroplasty Instruments OA Barrera, KL Garvin, L Kibuule, H Haider	
4:00 pm – 4:10 pm	B6-5—A Comparison Study: Bilateral Total Knee Arthroplasty With and Without Surgical Navigation - BN Stulberg, JD Zadzilka	
4:10 pm – 4:25 pm	Panel discussion/Q&A	
4:25 pm—4:35 pm	B6-6—Navigation Versus Manual TKA: The Impact of Computer Assisted Surgery on Training in TKA Surgery—Where We Are in 2006 and Where We Are Going SD Stulberg	
4:35 pm – 5:55 pm	B7—MIS-KNEE Chairmen: Richard Laskin, Jean Aubaniac Invited: Fred Tria, Jean Aubaniac, Keith Berend	Terrace Ballroom Lobby Level
4:35 pm – 4:40 pm	Session overview and objectives (Laskin)	
4:40 pm – 4:50 pm	MIS for Unicompartmentals - Fred Tria	
4:50 pm – 5:00 pm	Experience with Mobile Bearing Unis – Keith Berend	
5:00 pm – 5:10 pm	A Systematic Approach to MIS - Jean Aubaniac	
5:10 pm – 5:20 pm	B7-1—Precision of the Positioning of an Unicompartmental Knee Prosthesis by a Mini-Invasive Navigated Technique - J-Y Jenny, PE Muller, R Weyer, M John, E Ciobanu, P Weber, A Schmitz, T Bacher, W Neumann, V Jansson	
5:20 pm – 5:30 pm	B7-2—Medial Unicondylar Knee Arthroplasty Decreases Pain and Improves Function: A Prospective, Single Surgeon Report on 2-Year Minimum Follow-Up W Macaulay, RS Yoon	
5:30 pm – 5:40 pm	B7-3—Is Minimally Invasive Surgery-Total Knee Arthroplasty (MIS-TKA) Less Invasive Than Standard TKA? - S Tsuji, T Tomita, M Fujii, T Watanabe, K Sugamoto, H Yoshikawa	
5:40 pm – 5:55 pm	Panel discussion/Q&A	
7:00 pm	Gala Awards Dinner Presentation of the Lifetime Achievement Award	Terrace/Palm Ballroom 19

**INTERNATIONAL SOCIETY FOR TECHNOLOGY IN ARTHROPLASTY
OCTOBER 6-9, 2006, NEW YORK CITY
The Roosevelt Hotel**

MONDAY, October 9, 2006

7:00 am – 6:00 pm	ISTA Registration	Grand Ballroom Foyer
8:00 am – noon	Exhibitors Poster Display	Grand Ballroom Foyer Promenade / State Suites
8:30 am – 10:25 am	A10—HI-PERFORMANCE KNEES – HI-FLEXION Chairmen: Rick Komistek, Giorgio Gasparini Invited: Giorgio Gasparini, Phillip Noble	Grand Ballroom Mezzanine Level
8:20 am – 8:25 am	Session overview and objectives (Komistek)	
8:25 am – 8:35 am	An Evaluation of High Flexion Knees - Giorgio Gasparini	
8:35 am—8:45 am	Kneeling and Squatting After TKA: Kinematics and Symptons - Phillip Noble	
8:45 am – 8:55 am	A10-1—In Vivo Analysis of Knee Kinematics for Subjects Implanted With a High Flexion TKA - DA Dennis, RD Komistek, J-N Argenson, GR Scuderi	
8:55 am – 9:05 am	A10-2—Does High Flexion TKA Improve the Mechanical Behaviour at Higher Flexion Angles and Does It Maintain the Good Mechanical Performance of Standard TKA at Normal Flexion Angles? M Barink, M De Waal Malefijt, A Van Kampen, N Verdonschot	
9:05 am – 9:15 am	A10-3—In Vivo Comparison of Kinematics for Subjects Having a Nexgen High Flex or Scorpio Superflex PS TKA N Yoshino, S Takai, M Owens, RD Komistek	
9:15 am – 9:25 am	A10-4—Comparison of High Flexion TKA Patellofemoral Kinematics F Leszko, A Sharma, RD Komistek, HE Cates, GR Scuderi	
9:25 am – 9:35 am	A10-5—Kinetic Performance Comparison for Traditional and High Flexion TKA A Sharma, RD Komistek, DA Dennis, CS Ranawat, GR Scuderi, F Liu	
9:35 am – 9:45 am	A10-6—Deep Flexion Kinematics in PCL-Retaining and-Sacrificing Knees With the Same Implant Design - SA Banks, K Mitchell, CJ Leslie, WA Hodge	
9:45 am – 9:55 am	A10-7—Patellofemoral Complications in Total Knee Arthroplasty: Clinical and Radiographic Results of 145 Conservative Cases Using a Third Generation Posterior Cruciate Substituting Knee Prosthesis - A Rajadhyaksha, R Ramakrishnan, C Kuhn, S Zelicof	
9:55 am – 10:15 am	Panel discussion/Q&A	
10:15 am – 10:30 am	Coffee Break/Exhibitors/Posters	
10:30 am - 11:30 am	A11—HI-PERFORMANCE KNEES – WEAR AND MOBILES Chairman: Scott Banks	Grand Ballroom Mezzanine Level
10:30 am – 10:35 am	Session overview and objectives (Banks)	
10:35 am—10:45 am	Lifetime Achievement Award Paper: Al Burstein	
10:45 am – 10:55 am	A11-1—Wear Advantage of Novel Rotating Bearing Knee – An In-Vitro Study L Angibaud, A Burstein, WB Balcom, G Miller	

10:55 am – 11:05 am	A11-2—Design Specific Increase in Range of Motion With the PFC Sigma RP-F TKR: A Matched Pair Study AS Ranawat, SK Gupta, CS Ranawat, B Zikria, J Zikria	
11:05 am – 11:15 am	A11-3—In Vivo Kinematics of Nexgen LPS-FLEX Mobile Bearing TKA in Deep Knee Bending Motion - M Tamaki, T Tomita, T Watanabe, T Yamazaki	
11:15 am – 11:30 am	Panel discussion/Q&A	
11:30 am -12:50 pm	A12—LIGAMENT BALANCING Chairman: James Elting, Chit Ranawat Invited: Carl Deirmengian	Grand Ballroom Mezzanine Level
11:30 am – 11:40 am	Session overview and objectives (Ranawat)	
11:40 am – 11:50 am	Objective of Soft Tissue Balancing (Deirmengian)	
11:50 am – 12:00 pm	A12-1—Instability of Total Knee Replacements Implanted With a Ligament Balancing Intraoperative Tensor - RJ Sinha	
12:00 pm – 12:10 pm	A12-2—Computer Assisted Orthopaedic Surgery With Ligament Balancing Technique Using an Internal Tensionometer Lowers Manipulation Rate in Total Knee Replacement - ML Swank, LL Korbee	
12:10 pm – 12:20 pm	A12-3—Total Knee Arthroplasty for Valgus Deformity Corrected With the Pie-Crusting Technique: A Five to Twelve Year Follow Up Study A Baldini, D Lup, P Aglietti	
12:20 pm – 12:30 pm	A12-4—The Relationship Between Intra-Operative Soft Tissue Balance and Short-Term Post-Operative Results in PS-Type TKA Y Soda, J Oishi, K Nishikawa, K Yamasaki, O Ishida	
12:30 pm – 12:50 pm	Panel discussion/Q&A	
1:30 pm – 5:00 pm	PUBLIC SYMPOSIUM ON JOINT REPLACEMENT Choices & Outcomes of Joint Replacement	Grand Ballroom Mezzanine Level
1:30 pm – 1:35 pm	Introduction—Dr. Linda Russell Board Member, Arthritis Foundation, New York Chapter	
1:35 pm—1:50 pm	PATIENT PERSPECTIVES IN TOTAL KNEE Chit Ranawat	
1:50 pm – 3:00 pm	CHOICES IN TOTAL JOINT DESIGNS Chairman: Peter Walker Invited: Kelly Vince, Chit Ranawat, Joe Fetto Panel discussion/Q&A	
3:00 pm – 3:15 pm	Coffee Break	
3:15 pm – 4:30 pm	SURGICAL TECHNIQUES & PAIN MANAGEMENT Chairman: Tom Sculco Invited: Richard Laskin, Kris Keggi, Fredrick Jaffe Panel discussion/Q&A	
4:30 pm – 5:35 pm	EFFECTIVENESS OF REHABILITATION Chairman: Phil Noble Invited: Lynn Snyder-Mackler, Carol Mancuso, James Elting Panel discussion/Q&A	
5:35 pm – 5:45 pm	Summary of Symposium and Adjournment Chit Ranawat and Peter Walker	