

# Sixth International Conference on Urban Earthquake Engineering

March 3-4, 2009

The Center for Urban Earthquake Engineering (CUEE) at Tokyo Tech is pleased to announce its Sixth International Conference on Urban Earthquake Engineering to be held in downtown Tokyo March 3-4, 2009.

We will hold five plenary sessions with seven keynote speakers (Jonathan Bray, Kenneth Campbell, Kazuhiko Kawashima, Stephen Mahin, Steven McCabe, Jack Moehle and Itsuki Nakabayashi), as well as parallel sessions on: Engineering Seismology; Tsunami; Geotechnical Earthquake Engineering; Reinforced Concrete, Steel, and Bridge Structures; Passive Control and Base Isolation; Advanced Seismic Design and Analysis; and Seismic Hazard Mitigation Planning and Human Behavior.

This Sixth International Conference will thus offer a broad range of dynamic and exciting presentations by both Japanese and overseas experts in all these fields. We hope that the conference will provide a unique opportunity for everyone interested in and concerned with the field of Urban Earthquake Engineering in all its aspects.



**Venue:** Marunouchi Building Hall (7F and 8F, Marunouchi Building), Tokyo

**Registration:** There is no fee to register, however advanced registration via e-mail or on the CUEE web page (see *below*) is strongly encouraged.

(For the Welcome Event on March 3rd there will be a charge of 3000 yen/ person.)

**Organizer:**

Global COE Program "International Urban Earthquake Engineering Center for Mitigating Seismic Mega Risk"

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Tokyo Tech  
**CUEE**

# March 3rd (Tue)

**Registration 9:00~10:00**

**Opening Session (Chair: T. Takeuchi) Main Hall 10:00~10:30**

Welcome Message /K. Tokimatsu (Tokyo Institute of Technology)  
R. W. Boulanger (University of California, Davis)

**Keynote Lecture 1 (Chair: S. Midorikawa) Main Hall 10:30~11:00**

**Next Generation Attenuation (NGA) Project: Empirical Ground Motion Prediction Equations for Active Tectonic Regions/ K. W. Campbell (ABS Consulting)**

**Keynote Lecture 2 (Chair: S. Midorikawa) Main Hall 11:00~11:30**

**The Northern Tokyo Bay Earthquake as Mega-disaster and Strategic Studies for Mitigation and Recovery/ I. Nakabayashi (Tokyo Metropolitan University (Tokyo Institute of Technology))**

**Keynote Lecture 3 (Chair: A. Wada) Main Hall 11:30~12:00**

**Performance-based Seismic Design of Tall Buildings/ J. P. Moehle (University of California, Berkeley)**

**Poster Session 1 Foyer 12:00~13:00**

Examination of Effects of Array Layout on Source Inversion by Strong-Motion Dataset of the 1979 Imperial Valley Earthquake/ M. Ohori (Japan Agency for Marine-Earth Science and Technology)

Joint Inversion of S-wave, Receiver Function and Phase Velocity of Rayleigh Wave to S-wave Profile of Deep Sedimentary Layers/ H. Suzuki (OYO Corp. (Tokyo Institute of Technology))

Estimation of Spectral Amplification of Ground Using H/V Spectral Ratio of Microtremors and Geomorphological Land Classification/ S. Senna (National Research Institute for Earth Science and Disaster Prevention (Tokyo Institute of Technology))

Spatial Spectral Characteristics of High Resolution Satellite Image on Each Geomorphology for Detailed Geomorphologic Classification Mapping/ K. Ishii (Tokyo Institute of Technology)

Review of Historical Earthquakes and Its Damage on Religious Architecture in Republic of Turkey/ M. Morita (Tokyo Institute of Technology)

Jishin The Vuton, 2-D Full Scale Earthquake Testing Machine Using the Holonomic Omni-Directional Vehicle/ R. Yamaguchi (Tokyo Institute of Technology)

Frame Analysis of Passively Controlled Wooden Frame Using Hysteresis Model Based on Experiment of Joint/ K. Matsuda (Tokyo Institute of Technology)

Practical Modeling of Reinforced-Concrete Beam-Column Joints/ A. Birely (University of Washington)

Large Scale Shake Table Earth Pressure Experiments/ P. Wilson (University of California, San Diego)

Comparison and Validation of Dynamic Strut-and-Tie and Fiber Beam-Column Models for the UCSD Seven-Story Full-Scale Building Slice Test/ A. R. Barbosa (University of California, San Diego)

Evaluation of Compressive Fracture Behavior of High-Strength Concrete under Cyclic Loading by Digital Image Correlation Method/ Y. Noma (Tokyo Institute of Technology)

Influence of Joint Position and Prestress on Shear Carrying Capacity of Segmental Concrete Beams with External Tendons/ D. H. Nguyen (Tokyo Institute of Technology)

Mid-column Pounding with Heavy Adjacent Building Considering Soil-Foundation Interaction/ K. Shakya (Tokyo Institute of Technology)

Ductility Evaluation of SRC Piers Considering Restorability and Ultimate State/ H. Naito (Tohoku University)

Transportation Network Protection Strategies under Seismic Hazard/ C. Liu (University of California, Davis)

Fatigue Performance of Defect Containing Under-matched Welded Joints/ A. Tanabe (Tokyo Institute of Technology)

Effect of Strong Vertical Component of Nearfield Ground Motion on the Seismic Performance of a RC Bridge/ H. Matsuzaki (Tokyo Institute of Technology)

Analysis of the Value of Information in the Design of Resilient Water Distribution Networks/ M. Comboul (University of Southern California)

A Business Continuity Planning of Tokyo-Tech Suzukakedai Campus/ M. Fujioka (Tokyo Institute of Technology)

Capacity Building of Community Organization for Responding to an Earthquake Disaster/ J. Mihira (Tokyo Institute of Technology)

Global Center of Excellence for Sustainable Urban Regeneration/ The University of Tokyo

Disaster Mitigation of Cultural Heritage and Historic Cities/ Ritsumeikan University

**Lunch Break 13:00~13:50**

**Parallel Session 1 Main Hall and Rooms 4 & 5 13:50~15:15**

**Engineering Seismology 1 (Chair: K. L. Wen & T. Ichimura) Main Hall**

Conditions of Fault Rupture and Site Location that Generate Damaging Pulse Waves/ T. Kagawa (Tottori University)

Source Modeling of Subduction-zone Earthquakes for Long-period Ground Motion Validation/ H. Miyake (The University of Tokyo)

Estimation of Strong Motion near the Source Region for the Recent Earthquakes in Japan Using Aftershock Records/ K. Motoki (Tokyo Institute of Technology)

Variability in Response Spectra for Crustal Earthquake using Stochastic Green's Function Approach/ T. Itoi (Taisei Corporation)

Asymmetrical Ground Motion under Extreme Shaking due to the Trampoline Effect/ S. Aoi (National Research Institute for Earth Science and Disaster Prevention)

A Model of Ground Structure Estimated from Microtremor Arraies in Hsinchu, Taiwan/ H. Morikawa (Tokyo Institute of Technology)

**Concrete Structure (Building Engineering) (Chair: C. Adam & S. Hayashi) Room 4**

Review and Analysis on Characteristics of Seismic Damages of RC Structures in Wenchuan Earthquake/ Y. Li (Chongqing University)

Seismic Retrofit of RC Members Using FRP with Very Low Young's Modulus/ S. Kono (Kyoto University)

Formulation of Bi-axial Non-linear Restoring Force Characteristics with Slipping Behavior by Using the Theory of Plasticity/ K. Nishimura (Tokyo Institute of Technology)

Effects of Axial Load on Shear Transfer Mechanism during Progress of Shear Damage in RC Columns/ Y. Shinohara (Tokyo Institute of Technology)

Yield Surface and Behavior of 3D Asymmetrical RC Frames with Shear Walls/ H. Hotta (Tokyo Institute of Technology)

**Risk Management 1 (Chair: L. C. Chen & H. Kaji) Room 5**

Communicating to Overcome Barriers to Mitigation/ G. S. Saluvaduray (San Jose State University)

Quick Damage Detection of Urban Areas using Digital Airborne Images/ F. Yamazaki (Chiba University)

Study on an Information Management System of Public Office to Support Emergency Response Activities - Case Study of Nagoya Port -/ K. Ishibashi (Nagoya Sangyo University)

Cyber City Implementation and Applications to Hazard Mitigation/ F. Tsai (National Central University)

Earthquake Evacuation from Peak-hour Underground Rails/ Y. Muromachi (Tokyo Institute of Technology)

Towards a Computational Model for Constructive Decision Making/ H. Fujii (Tokyo Institute of Technology)

**Parallel Session 2 Main Hall and Rooms 4 & 5 15:20~16:45**

**Engineering Seismology 2 (Chair: K. W. Campbell & H. Yamanaka) Main Hall**

Damage of the 2008 Wenchuan, China Earthquake Observed in Satellite Optical and SAR Images/ H. Miura (Tokyo Institute of Technology)

A Digital Archive based on Web-GIS Technology Monitoring Damage, Recovery and Development of a Community Affected by an Earthquake/ M. Takashima (Fuji Tokoha University)

Landslides during the 2008 Iwate-Miyagi-Nairiku, Japan Earthquake Observed in High-Resolution SAR Images/ S. Midorikawa (Tokyo Institute of Technology)

Modeling of Interdependency Associated with a System Failure of Critical Infrastructure Networks in Views of a Seismic Disaster Risk/ G. Shoji (University of Tsukuba)

Global Trends of Disaster Impact: Economic Impact and Development/ Y. Okuyama (International University of Japan)

**Concrete Structures + Analysis (Chair: Y. Li & Y. Shinohara) Room 4**

Reinforced Concrete Beam-column Joint : An Overlooked Failure Mechanism/ H. Shiohara (The University of Tokyo)

Experimental Study on Mechanical Behavior of A Cruciform Frame with Floor Slab using P/C Mild-Press-Joint / H. Sakata (Tokyo Institute of Technology)

Damage-free Reinforced Concrete Buildings with Good Repairability/ K. Shimazaki (Kanagawa University)

P-Delta Effects in Earthquake Excited Structures/ C. Adam (University of Innsbruck)

Nonlinear Analysis of Buildings with Elevated Lower Levels Impacted by Tsunami Water-borne Massive Objects / A. Wijeyewickrema (Tokyo Institute of Technology)

**Risk Management 2 (Chair: G. S. Saluvaduray & H. Fujii) Room 5**

The Recovery Process of Chi-Chi Earthquake from 1999/ L. C. Chen (National Taiwan University)

A Study on Administrative Support in Revival Process from the Niigata Chuetsu Earthquake in 2004/ M. Sawada (Nagaoka Institute of Design)

The Dynamic Relation between Demand and Supply of Temporary Housing Following Urban Disaster/ K. Sato (The University of Tokyo (Tokyo Institute of Technology))

Discussion Process among the Affected Peoples to Reach a Consensus on Reconstruction Program after a Disaster/ H. Kaji (Tokyo Institut of Technology)

A study on Urban Disaster Mitigation by a Building-replacement Control Method which Assumed the Gain-maximizing Behavior Model/ Y. Meshitsuka (Tokyo Institute of Technology)

Reconstruction of Sichuan Earthquake,2008/ W. Yan (Keio University)

**Keynote Lecture 4 (Chair: S. Mahin) Main Hall 17:00~17:30**

**E-Defense Project on Seismic Performance of Bridges/ K. Kawashima (Tokyo Institute of Technology)**

**Keynote Lecture 5 (Chair: J. Niwa) Main Hall 17:30~18:00**

**Advancing the State of Earthquake Engineering through Cooperative Research and Large Scale Testing / S. L. McCabe (Network for Earthquake Engineering Simulation)**

**Welcome Party Foyer 18:00~20:00**

# March 4th (Wed)

## Parallel Session 3 Main Hall and Rooms 4 & 5 9:00~10:25

### Design & Standards (Chair: A. Wada) Main Hall

The Recent Update of Chinese Codes for Seismic Design of Buildings and Concerned Damages in 512 Wenchuan Earthquake/ W. Yayong (China Academy of Building Research)

Quality Assurance for Seismic Safety in California Public Schools/ J. P. Hackett (State of California)

Seismic Mass Damper Application in Los Angeles World Airports/ H. K. Miyamoto (Miyamoto International, Inc. (Tokyo Institute of Technology))

Site-Specific Ground Motions for Earthquake Design of Building Structures: Present State and Future Trend/ K. Kato (Kajima Corporation)

### Engineering Seismology 3 (Chair: K. L. Wen & H. Morikawa) Room 4

Probabilities and Shakemaps of the Potential Earthquakes in Taiwan/ K. L. Wen (National Central University)

Estimation of Deep and Shallow Soil Models for the Kanto Basin, Japan, Using Site Amplifications from Spectral Inversion of Strong Motion Data/ H. Yamanaka (Tokyo Institute of Technology)

Long-period Site Response in the Tokyo Metropolitan Area/ T. Tsuda (Shimizu Corporation)

Correlation Methods Revisited with a Consequence of Seismic Interferometry/ T. Yokoi (International Institute of Seismology and Earthquake Engineering)

Propagation of Rayleigh Waves in an Irregular Ground/ S. Nakai (Chiba University)

Seismic Structural Response and Strong Ground Motion Simulation Based on Multiscale Analysis/ T. Ichimura (Tokyo Institute of Technology)

### Concrete Structures (Civil Engineering) (Chair: N. Banthia & J. Niwa) Room 5

Piezoresistive Fiber Reinforced Cementitious Composites with High Toughness and Dynamic Sensing Abilities for Earthquake Resistant Structures/ N. Banthia (University of British Columbia)

Behavior of Anchorage Zone in Post-tensioned Prestressed Concrete Girders/ S. Hengprathane (Kasetsart University)

Structural Performance Evaluation of Reinforced Concrete Members Subjected to Impact Loading/ M. Iwanami (Port and Airport Research Institute)

Deformation Capacity of Corroded RC Column under Seismic Load/ M. Oyado (Railway Technical Research Institute)

Residual Load Carrying Capacity of RC Beams with Spatial Variability of Corrosion/ T. Miki (Kobe University)

Shear Failure Mechanism of RC Deep Beams in Frame Structures Subjected to the Seismic Loading/ K. Watanabe (Tokyo Institute of Technology)

## Parallel Session 4 Main Hall and Rooms 4 & 5 10:30~11:55

### Base Isolation/ Vibration Control (Chair: G. Deierlein & K. Kasai) Main Hall

Collaborative Research on Development of Innovative Steel Braced Frame Systems with Controlled Rocking and Replaceable Fuses/ G. G. Deierlein (Stanford University)

Study on Energy-based Seismic Design of Steel Braced Frames/ L. Ye (Tsinghua University)

Full-scale Experiments and Analyses of 5-story Steel Frame with Different Dampers/ K. Kasai (Tokyo Institute of Technology)

Possibility of Structural Design Using Seismic Isolation System/ Y. Kanebako (Kanabako Structural Engineers (Tokyo Institute of Technology))

Performance of Seismic Isolated Structure for Long Period Ground Motions/ M. Takayama (Fukuoka University)

A Structural Design Method of Building Mass Damper System Based on Mode Control Concept with Dynamic Mass/ T. Furuhashi (Nihon University)

### Geotechnical Earthquake Engineering 1 (Chair: R. E. S. Moss & O. Kusakabe) Room 4

Identifying Liquefaction Processes with Dense Arrays in Centrifuge Models/ R. W. Boulanger (University of California, Davis)

Steady-state of Micaceous Sand/ M. Yoshimine (Tokyo Metropolitan University)

Curing Pressure Dependency of Compressive Strength of Cement-treated Sand/ K. Takahashi (Tokyo Institute of Technology)

Relation of Accumulation of Volumetric Strain and Generation of Pore Water Pressure under Constant Load and Constant Volume Cyclic Simple Shear Loading/ C. J. Lee (National Central University)

Effects of Moisture Content of Soil on Natural Slope Failure during the 2004 Niigata-ken Chuetsu Earthquake/ H. Toyota (Nagaoka University of Technology)

Dynamic Soil Properties Back-calculated from Strong Motions Recorded at Two Downhole Arrays during the 2007 Niigata-ken Chuetsu-oki Earthquakes/ K. Tokimatsu (Tokyo Institute of Technology)

### Bridge Structures (Chair: H. Hao & K. Ono) Room 5

Combined Ground Motion Spatial Variation and Local Site Amplification Effects on Bridge Structures Responses/ H. Hao (University of Western Australia)

Shake Table Tests for Development of Rapid Repair Method for Damaged Reinforced Concrete Bridge Columns/ J. Sakai (Public Works Research Institute)

Seismic Performance Verification of the Akashi-kaikyo Bridge against Large-scale Earthquakes/ K. Endo (Honshu-Shikoku Bridge Expressway Company Limited)

Verification Tests of the Dynamic Behavior of the Friction-based Rotational Damper Using Shaking Table/ A. Toyooka (Railway Technical Research Institute)

Seismic Retrofit Design of Tempoan Cable-Stayed Bridge/ H. Kobayashi (Hanshin Expressway Co. Ltd.)

Dynamic Analysis of Bridges in the Ultimate State under Earthquakes/ T. Y. Lee (National Central University)

Response of Multi-span Bridges Subjected to Seismic Excitation/ A. Crewe (University of Bristol)

## Poster Sessions 2 Foyer 12:00~13:00

Influence of Rigidity of Column base on Seismic Performance of Steel Moment Frame Retrofitted with Hysteretic Damper/ H. Asada (Tokyo Institute of Technology)

Peak Response Evaluation Method for Slip-hysteretic Structure Passively Controlled by Visco-elastic Damper/ W. Pu (Tokyo Institute of Technology)

Estimation of Kinematic Force Acting on Piles in Laterally Spreading Ground/ H. Suzuki (Tokyo Institute of Technology)

Shaking Table Tests on Soil-Pile-Structure Models with Semi-rigid Pile Head Connections/ S. Ishizaki (Taisei Corporation)

Pseudo-static Seismic Response of Tunnel in Sand/ S. Shibayama (Tokyo Institute of Technology)

Centrifuge Model Test of Piled Raft Foundation Subjected to Horizontal Load/ K. Sawada (Tokyo Institute of Technology)

Train-induced Wave Propagation in Ground Using Finite/Infinite Element Modeling in ABAQUS/ R. Motamed (Tokyo Institute of Technology)

Volume Change of Unsaturated Soils with Varying Fines Contents from Cyclic Loading/ E. Yee (University of California, Los Angeles)

Seismic Performance of Ductile Beam-Column Joints/ B. Chang (University of California, San Diego)

Experimental Evaluation of Structural Behavior of Subassemblies Affected by the Presence of the Gusset-plate/ S. Kishiki (Tokyo Institute of Technology)

Elasto-plastic Behavior of Panel Zone with Concrete Slab/ Y. Shimada (Tokyo Institute of Technology)

Local Buckling Failure Conditions for Buckling Restrained Braces/ R. Matsui (Tokyo Institute of Technology)

Shape Optimization of Unidirectional Free Surface Shells Subjected to Strong Wind/ T. Yamashita (Tokyo Institute of Technology)

A Practical Study on Residential Environment of Temporary Housing of Disaster/ A. Iwasa (Niigata University)

A Computer Simulation Framework for Pedestrian Evacuation Planning/ C. Y. J. Chu (National Central University)

Numerical Simulation of Tsunami Flow at Inland Bridges/ T. L. Lau (Tokyo Institute of Technology)

Assessment of Buildings with Elevated Lower Levels Subjected to Tsunami Loadings/ K. M. Madurapperuma (Tokyo Institute of Technology)

Global Center of Excellence for Sustainable Urban Regeneration/ The University of Tokyo

Disaster Mitigation of Cultural Heritage and Historic Cities/ Ritsumeikan University

## Lunch Break 13:00~13:50

## Parallel Session 5 Main Hall and Rooms 4 & 5 13:50~15:15

### Steel Structures 1 (Chair: M. Bruneau & T. Takeuchi) Main Hall

Mitigation Strategies for Regional Loss Assessment/ J. Hajjar (University of Illinois at Urbana Champaign)

Seismic Performance of Steel Knee Braced Frame Structures/ H. L. Hsu (National Central University)

Shaking Table Test of Steel Frame Focusing on the Strength and Stiffness Eccentricity of Hysteresis Dampers/ S. Yamada (Tokyo Institute of Technology)

Elasto-Plastic Behavior for Two Story Braced Frame with Leaning Columns/ Y. Kimura (Nagasaki University)

Hysteretic Behaviour of Thin Web Plate under Cyclic Bending-Shear Loading/ K. Ikarashi (Tokyo Institute of Technology)

### Geotechnical Earthquake Engineering 2 (Chair: J. D. Bray & J. Takemura) Room 4

Mitigation of Seismic Damage in Suburban Residential Area/ I. Towhata (The University of Tokyo)

Uncertainty Propagation in Geotechnical Earthquake Engineering/ R. E. S. Moss (California Polytechnic State University)

3-D Time-domain Fast Multiple BEM based on the Convolution Quadrature Method for Seismic Analysis/ S. Hirose (Tokyo Institute of Technology)

Comparison of Surface Motions of a Partially Improved Ground Using 1D, 2D and 3D Ground Models/ H. T. Chen (National Central University)

Soil-Water-Air Coupled Analysis of Seepage and Seismic Behavior of Residential Fill/ R. Uzuoka (Tohoku University)

### Human Behavior (Chair: E. Prawoto & R. Ohno) Room 5

The Ngibikan Village Reconstruction Enhancing the Social Structure of the Community/ E. Prawoto (Duta Wacana Christian University)

Individualized Risk Communication for Soil Avalanche Hazard/ S. Fujii (Tokyo Institute of Technology)

A Study on Human Behavior of Highrise Apartment Residents in Case of Hanshin Awaji Earthquake 1995/ K. Ohnishi (Kobe University)

Mining Critical Systems' Failure Records to Discover Infrastructure Interdependency for Urban Disaster Mitigation/ C. C. Chou (National Central University)

Quantitative Analysis of Lot Subdivisions in Urban Districts/ T. Osaragi (Tokyo Institute of Technology)

Request for Architectural and Urban Technology from the Viewpoint of Business Continuity/ H. Maruya (Research Institute of Construction and Economy (Tokyo Institute of Technology))

**Parallel Session 6 Main Hall and Rooms 4 & 5 15:20~16:45**

**Steel Structures 2 (Chair: J. Hajjar & K. Ikarashi) Main Hall**

Innovations in Steel Plate Shear Wall Design/ M. Bruneau (State University of New York at Buffalo)

A Trial for Seismic Fragility Evaluation of a Large Lattice Dome Supported by Buckling Restrained Braces/ S. Kato (Toyoashi University of Technology)

Damage in Earthquakes and Dynamic Characteristics of Hanging Ceiling System in Japan/ S. Motoyui (Tokyo Institute of Technology)

Seismic Response Evaluation of Lattice Roofs with Substructures/ T. Takeuchi (Tokyo Institute of Technology)

Vibration Tests of Arch Structures Supported by Substructures with Various Natural Periods and Mass Subjected to Horizontal Earthquake Motions/ T. Kumagai (Tokyo Institute of Technology)

**Geotechnical Earthquake Engineering 3 (Chair: R. W. Boulanger & A. Takahashi) Room 4**

Effects of Existing Piles on Lateral Resistance of New Pile Based on Centrifuge Tests/ S. Tamura (Kyoto University)

Stability of Oil Tank Supported by Piled-raft Foundation on Liquefiable Sand/ J. Takemura (Tokyo Institute of Technology)

Studies on Various Pile Group Models Using Effective Stress Analysis/ K. Fukutake (Shimizu Corporation)

Bending, Bearing and Buckling: Effects of Axial Load on Pile Response in Liquefiable Soils/ J. Knappett (University of Dundee)

An Approach to Study Dynamic Stability of Pile-supported Structures in Liquefiable Soils/ S. Bhattacharya (University of Bristol)

**Tsunami (Chair: M. A. Nosov & T. Ohmachi) Room 5**

Description of a Tsunami Source: Points for Improvement/ M. A. Nosov (M.V.Lomonosov Moscow State University)

Tsunami Forecasting Using Inversion Analysis/ A. Ruangrassamee (Chulalongkorn University)

Tide Gauge Records in the India Ocean and its Use for Tsunami Study/ H. Matsumoto (Japan Agency for Marine-Earth Science and Technology)

Dynamic Response Analysis of Road Bridges Struck by Tsunami/ S. Kataoka (National Institute for Land and Infrastructure Management)

Near Field Tsunami Excited by the 2003 Tokachi-Oki Earthquake/ S. Inoue (Tokyo Institute of Technology)

The Scenario Study and Dispersion Effect on the Tsunami Threat from South China Sea to Taiwan/ T. R. Wu (National Central University)

**Keynote Lecture 6 (Chair: K. Tokimatsu) Main Hall 17:00~17:30**

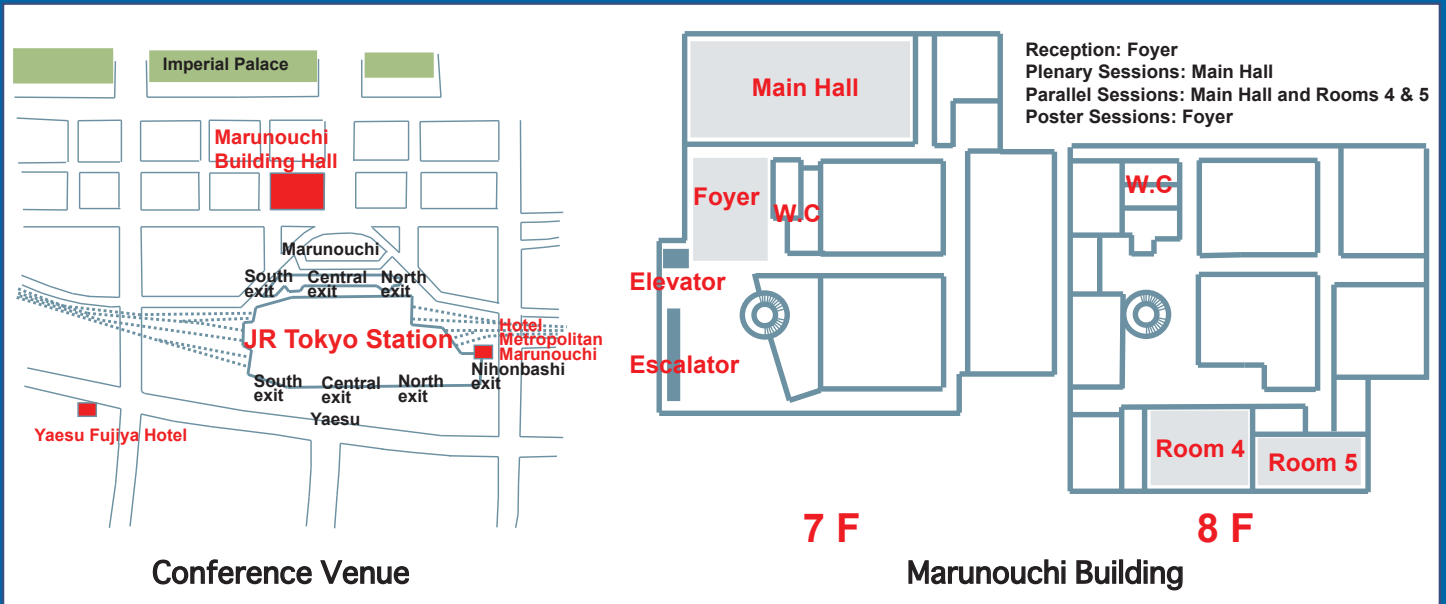
Earthquake Surface Fault Rupture Design Considerations/ J. D. Bray (University of California, Berkeley)

**Keynote Lecture 7 (Chair: K. Kawashima) Main Hall 17:30~18:00**

Earthquake Engineering as a Component of Sustainable Development/ S. A. Mahin (University of California, Berkeley)

**Closing Session (Chair: K. Kasai) Main Hall 18:00~18:30**

Closing Remarks/ S. Midorikawa (Tokyo Institute of Technology)  
M. Bruneau (State University of New York at Buffalo)



		Main Hall & Foyer	Room 4	Room 5
3/3 (Tue)	9:00-10:00	Reception		
	10:00-10:30	Opening Session		
	10:30-12:00	Keynote Lectures		
	12:00-13:00	Poster Session 1		
	13:00-13:50	Lunch		
	13:50-15:15	Seismology 1	Concrete (Building)	Risk Management 1
	15:20-16:45	Seismology 2	Concrete+Analysis	Risk Management 2
	17:00-18:30	Keynote Lectures		
	18:00-20:00	Welcome Party		
3/4 (Wed)	9:00-10:25	Design & Standards	Seismology 3	Concrete (Civil)
	10:30-11:55	Base Isolation / Vibration Control	Geotech. Earth. Eng. 1	Bridge
	12:00-13:00	Poster Session 2		
	13:00-13:50	Lunch		
	13:50-15:15	Steel structures 1	Geotech. Earth. Eng. 2	Human Behavior
	15:20-16:45	Steel structures 2	Geotech. Earth. Eng. 3	Tsunami
	17:00-18:00	Keynote Lectures		
	18:00-18:30	Closing Session		