

**16<sup>th</sup> U.S.-Japan-N.Z. Workshop**  
**on the Improvement of Structural Engineering and Resiliency**  
Todaiji Temple Cultural Center in Nara, Japan  
June 27-29, 2016

**WORKSHOP PROGRAM**

**SUNDAY, JUNE 26, 2016**

Location: Banquet Room, HITEN in Hotel Nikko Nara

6:00 pm – 9:00 pm:     **Registration & Welcome Ice Breaker**

**MONDAY, JUNE 27, 2016**

Location: Small Hall at B1 in Todai-ji Cultural Center

8:30 am – 9:00 am:     **Registration, Coffee/Tea**

9:00 am – 9:30 am:     **Opening Remarks;** Kawamura (Japan); Miyamoto, Heintz (US)  
Elwood (NZ)

**Session I: Resiliency Based Engineering**  
*Chairpersons: Kawamura (Japan); Miyamoto (US)*

9:30 am – 10:30 am:   **Presentations** (5 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*PI-1*    *Engineers: The Forgotten Stakeholder in the Resilience Conversation;* J. Heintz\* (US)

*PI-2*    *On the Resiliency of Power Grids after Earthquakes;* J. Eiding\* (US)

*PI-3*    *Modal Decomposition and Behavior of Free Vibration Response with Grounding and Uplifting;* T. Masuno\* (Jp)

*PI-4*    *Improving Resiliency by Designing for Community Needs;* V. Cedillos\* (US)

*PI-5*    *Balance and Harmony;* D. Mar\* (US)

10:30 am – 10:40 am:   **Break**

10:40 am – 11:20 am:   **Presentations** (3 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*PI-6*    *Resilience and Earthquake Engineering;* P. Yanev\* (US)

*PI-7*    *Performance versus Compliance;* R. Jury\* (NZ)

*PI-8*    *Current Direction for Improving Structural Engineering and Resiliency in New Zealand;* M. Stannard\* (NZ)

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\*Presenting author

11:20 am – 11:40 pm: **Discussions; Development of Technical and Policy Recommendations**

11:40 pm – 1:50 pm: **Lunch** (Location: Todaiji Cultural Center & Open Air Gardens)

**Session II: Post-Earthquake Repair and Residual Capacity**  
*Chairpersons: Celebi (US); Elwood (NZ)*

1:50 pm – 2:50 pm: **Presentations** (5 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P2-1 Rapid Fatigue Damage Assessment for Earthquake Losses: Stochastic Model and an Example from Christchurch, NZ; G. Rodgers\* (NZ)*

*P2-2 Assessing the Seismic Residual Fatigue Life of Reinforced Concrete Frame Buildings: A Proposed Framework; A. Cuevas Ramirez\* (NZ)*

*P2-3 Residual Seismic Capacity Evaluation and Damage Classification for Reinforced Concrete Buildings; M. Maeda\* (Jp)*

*P2-4 Post-Earthquake Residual Capacity of Damaged Reinforced Concrete Buildings; K. Elwood\* (NZ)*

*P2-5 Determination of the Post-Earthquake Capacity of an Eccentrically Braced Frame Seismic Resisting System; C. Clifton\* (NZ)*

2:50 pm – 3:00 pm: **Break**

3:00 pm – 3:50 pm: **Presentations** (4 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P2-6 Significance of Beating Effects Observed in Earthquake Responses of Two Tall Buildings; M. Çelebi\* (US)*

*P2-7 Earthquake Performance of a Three Story Actual Sub-Standard Building; M. Comert\* (US)*

*P2-8 Residual capacity of RC frame with walls based on full-scale loading test; T. Mukai\* (Jp)*

*P2-9 Insight from Intensive Assessment Analyses – The Benefit to Targeted Performance Enhancement for a Christchurch Ductile RC Moment-Frame Building; D. Pettinga\* (NZ)*

3:50 pm – 4:10 pm: **Discussions; Development of Technical and Policy Recommendations**

4:10 pm – 4:20 pm: **Closure** (Announcements, Kawamura)

6:30 pm – 9:30 pm: **Dinner Party** (Banquet Room, TENKU in Hotel Nikko Nara)

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## **TUESDAY, JUNE 28, 2016**

Location: Small Hall at B1 in Todaiji Cultural Center

8:20 am – 8:30 am:     **Opening Remarks**                    Kawamura (Japan)

### **Session III: Innovative Structural Design for Large Earthquakes** *Chairpersons: Regos (NZ); Nishimura (Japan)*

8:30 am – 9:30 am:     **Presentations** (5 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P3-1 Seismic upgrading of existing high-rise buildings utilizing newly developed tuned mass damper, oil damper and steel damper; N. Haneda\* (Jp)*

*P3-2 Structural Design of Tall Damped Building with Irregularly-Shaped Plane and Elevation for Large Earthquake; Y. Okuno\* (Jp)*

*P3-3 Testing and Application of Low Damage Technologies for Bridges in New Zealand; S. White\* (NZ)*

*P3-4 Structural design of high seismic performance twin tower by employing different structural system for each tower; S. Yoshida\* (Jp)*

*P3-5 Study on Dynamic Behavior of Wooden Horizontal Hybrid Structure Involving Stiff Cores; Y. Yamazaki\* (Jp)*

9:30 am – 9:40 am:     **Break**

9:40 am – 10:40 am:   **Presentations** (5 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P3-6 Effect of Column Modeling Parameters on Collapse Behavior of RC Building; A. Matamoros\* (US)*

*P3-7 An Experimental Study on the Buckling Stability of Laminated Rubber Bearings under Large Lateral Deformation; I. Nishimura\* (Jp)*

*P3-8 Cyclic Tests of Cylindrical Concrete Containment Structures and Their 3-D Finite Element Predictions; T. Hsu\* (US)*

*P3-9 Behavior of Precast Structural Walls Post-Tensioned by Unbonded Tendons in Shaking Table Tests on Actual-Size 4-Story Prestressed Concrete Building; L. Bedrinana\* (Jp)*

*P3-10 Behavior of structural walls of 1/3-scale 6-story reinforced concrete building in shaking table tests; M. Nishiyama\* (Jp)*

10:40 am – 11:00 am:   **Discussions; Development of Technical and Policy Recommendations**

11:00 am – 12:50 pm:   **Lunch** (Location: Todaiji Cultural Center & Open Air Gardens)

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**Session IV: Risk Identification and Reduction**  
*Chairpersons: Kennedy (US); Haneda (Japan)*

- 12:50 pm – 2:05 pm: **Presentations** (6 presentations @ 10 minutes; 2 additional QA minutes per presenter)
- P4-1 Design of Structures for Target Risk Using Nonlinear Analysis; M. Dolsek\* (US)*
  - P4-2 Structural Morphogenesis for Tunnel-Shaped Frame Structure; D. Wada\* (Jp)*
  - P4-3 Evaluation and Performance of Taiwan Housing and Schools in the Tainan/Meinong Earthquake; J. Mugford\* and C. Huang\* (US)*
  - P4-4 The Role of Nonlinear Damping Measurement in Identifying Damage, Tracking Ageing and Design Prediction; T. Winant\* and A. Jeary\* (US)*
  - P4-5 The Anatomy of Regulatory Reform for Buildings: The Role of Equity; A. Brower\* (NZ)*
  - P4-6 Laboratory Tsunami Loading Experiments on Buildings, and Comparison to U.S. and Japanese Standards; A. Kennedy\* (US)*
- 2:05 pm – 2:25 pm: **Discussions; Development of Technical and Policy Recommendations**
- 2:25 pm – 2:40 pm: **Break**

**Session V: Earthquake Response and Recovery**  
*Chairpersons: Yanev (US); Shinozaki (Japan)*

- 2:40 pm – 4:05 pm: **Presentations** (7 presentations @ 10 minutes; 2 additional QA minutes per presenter)
- P5-1 Kumamoto; M. Takayama\* (Jp)*
  - P5-2 Kumamoto; K. Morita\* (Jp)*
  - P5-3 Kumamoto; Y. Yanev\* (US)*
  - P5-4 Nepal; K. Miyamoto\* (US)*
  - P5-5 Nepal; R. Dhskal\* (NZ)*
  - P5-6 Ecuador; K. Miyamoto\* (US)*
  - P5-7 Christchurch; N. Regos\* (NZ)*
- 4:05 pm – 4:25 pm: **Discussions; Development of Technical and Policy Recommendations**
- 4:25 pm – 4:30 pm: **Closure** (Announcements)
- 6:30 pm – 9:30 pm: **Dinner Party** (Location: Downtown Nara)

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## **WEDNESDAY, JUNE 29, 2016**

Location: Small Hall at B1 in Todaiji Cultural Center

8:20 am – 8:30 am:     **Opening Remarks**           Heintz (US)

### **Session VI: Engineering and Technology in Developing Countries** *Chairpersons: Jury (NZ); Okoshi (Japan)*

8:30 am – 9:10 am:     **Presentations** (3 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P6-1 Can Big Data Approaches Help Earthquake Engineering in Underdeveloped Countries?; I. H. Cho\* (US)*

*P6-2 Reconstruction Assistance to Damaged Building in Nepal Earthquake 2015; T. Okoshi\* (Jp)*

*P6-3 Preparing Earthquake Disaster in Emerging Nations: The USAID “PREPARE” Program in Costa Rica and Colombia; K. Miyamoto\* (US)*

9:10 am – 9:30 am:     **Discussions; Development of Technical and Policy Recommendations**

### **Session VII: Resiliency of Non-Structural Elements** *Chairpersons: Mar (US); Mori (Japan)*

9:30 am – 10:30 am:   **Presentations** (5 presentations @ 10 minutes; 2 additional QA minutes per presenter)

*P7-1 JSCA’S Efforts on the Safety of Non-Structural Elements; T. Teramoto\* (Jp)*

*P7-2 JSCA’s Recommendation “Design and Detail of Non-structural Elements for Structural, Building and Building-Equipment Engineers”; A. Osada\* (Jp)*

*P7-3 Preliminary Guidelines for Enhanced Non-structural System Design to Achieve Functionality-Level Seismic Performance of Buildings; S. Soroushian\* (US)*

*P7-4 Experimental Evaluation of the Influence of Seismic Clips on Grid Joints in a Suspended Ceiling System; R. Dhakal\* (NZ)*

*P7-5 The Next Frontier – Improving the Seismic Resilience of Nonstructural Components; H. Ferner\* (NZ)*

10:30 pm – 10:50 pm:   **Discussions; Development of Technical and Policy Recommendations**

10:50 am – 11:10 am:   **Break**

### **Closing Session** *Chairpersons: Miyamoto, Heintz (US); Kawamura (Japan); Elwood (NZ)*

11:10 am – 12:00 pm:   **Workshop Summary & Wrap-Up**

12:00 pm:               **Leave for Hotel**

*Lunch by own*

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\*Presenting author

**Historical Tour: Wooden Traditional Structure**

**Horyu-ji Temple**

14:00 pm – 17:20 pm: **Tour by Bus**