

# DAY I January 14, 1998

## 0915 — 0945 Opening Ceremony

Room 101

Chairman: Professor Y. B. Yang, National Taiwan University, China, Taipei  
On the stage: Professor P. Karasudhi, Asian Institute of Technology, Thailand  
Professor F. Nishino, Saitama University, Japan  
Professor Y. Fujino, University of Tokyo, Japan  
Professor C. C. Chern, National Taiwan University, China, Taipei  
Professor Y. C. Loo, Griffith University-Gold Coast Campus, Australia  
Professor W. Kanok-Nukulchai, Asian Institute of Technology, Thailand  
Professor W. J. Chen, President, National Taiwan University, China, Taipei  
Dr. C. D. Ou, Public Construction Commission, Executive Yuan, China, Taipei

## 0945 — 1015 Keynote Lecture

Chairman : Professor Y. B. Yang, National Taiwan University, China, Taipei

The impact of the public works investment on the economic development in Taiwan

*Dr. C. D. Ou, Public Construction Commission, Executive Yuan, China, Taipei*

## 1015 — 1045 Coffee Break

## 1045 — 1230 Session I -1-201B : Analysis (i)

Room 201B

Chairmen : Professor X. L. Liu, TsingHua University, China, Beijing  
Professor K. S. Woo, Yeungnam University, Korea

Holonomic softening analysis of trusses

*F. Tin-Loi and S. H. Xia (Australia)*

3-dimensional finite element analysis of arch dam modeling non-linear behavior of construction joints

*T. Nishiuchi (Japan)*

The FE analysis of the elasto-plastic behavior of members with non-uniform cross sections by the beam theory

*S.-K. Yoon and J. Cheung (Korea)*

Importance of constitutive model in simulating cyclic behavior of steel structures

*H. Ge, S. Gao, and T. Usami (Japan)*

Elasto-plastic analysis of curved girders considering spread of plasticity

*H. Hirasawa, T. Hayashikawa, and K. Sato (Japan)*

Second-order analysis of planar steel frames considering spread of plasticity

*L.-J. Leu and C.-H. Tsou (China, Taipei)*

A note on the accurate solutions of medium and thick plates analysis

*H. Zhou (Australia)*

## 1045 — 1230 Session I -1-201C : Bridge Engineering (i)

Room 201C

Chairmen : Professor K. Kimura, University of Tokyo, Japan  
Professor C. Q. Li, Monash University, Australia

Instrumentation and monitoring of prestressed segmental bridge

*S. W. Lee and S. G. Lee (Korea)*

Truck loading test of flyover steel bridge in Bangkok

*T. Chaisomphob and V. Rungrojsaratit (Thailand)*

A streamlined ambient vibration analysis program for long-span bridges

*P. T. Y. Chang, C. C. Chang (Hong Kong), and L. D. Zhu (China, Beijing)*

Instantaneous and long-term deflection of the north Halawa valley viaduct  
*I. N. Robertson (U.S.A.)*

Ambient vibration study of a highway bridge  
*C. S. Huang, L. Y. Lu, C. H. Chen, and Y. B. Yang (China, Taipei)*

Study on environmental impact of bridges for type selection  
*Y. Itoh, L. Sunuwar, T. Hirano, H. Nagata, and T. Nishido (Japan)*

Aesthetics in bridge engineering: Japanese approach  
*E. Kido (Japan) and Z. Cywinski (Poland)*

**1045 — 1230 Session I –1–201D : Concrete Model Code for Asia**

**Room 201D**

*Chairmen : Professor D. G. Montgomery, University of Wollongong, Australia  
Professor H. Mutsuyoshi, Saitama University, Japan*

Establishment of concrete model code for Asia  
*T. Uomoto and H. Noguchi (Japan)*

Design part of draft concrete model code for Asia  
*T. Ueda and T. Kabeyasawa (Japan)*

Progress report on activities in drafting Asia model code for materials and construction for reinforced concrete structures  
*T. Noguchi (Japan), S. Tangtermsirikul (Thailand), A. Nanayakkara (Sri Lanka), L. R. Austriaco (Thailand), and Y.C. Loo (Australia)*

Report of the working group on materials and construction (concrete model code for Asia)  
*S. Tangtermsirikul (Thailand), T. Noguchi (Japan), A. Nanayakkara (Sri Lanka), W. Tanzo (Japan), L. R. Austriaco (Thailand), and Y. C. Loo (Australia)*

Model concrete code for Asia and Australian standard AS3600  
*S. Fragomeni, Y.-C. Loo, and I. Patnaikuni (Australia)*

New seismic design building code in Taiwan  
*M.-S. Sheu and Y.-H. Chen (China, Taipei)*

**1045 — 1230 Session I –1–201E : Earthquake Engineering (i)**

**Room 201E**

*Chairmen : Professor C. C. Lin, National Chung-Hsing University, China, Taipei  
Professor K. Wilde, University of Tokyo, Japan*

Out-of-plane seismic resistance of unreinforced masonry cantilever walls  
*A. Nurtug, N. Lam, and J. Wilson (Australia)*

Evaluation of seismic performance of concrete structures under Hyogoken Nanbu earthquake  
*I.-H. Kim, H. Okamura, and K. Maekawa (Japan)*

Seismic evaluation of structures in intraplate regions - recommendations for the future  
*N. Lam, J. Wilson, and G. Hutchison (Australia)*

Seismic interaction of RC buildings  
*Y. L. Mo and H. C. Lai (China, Taipei)*

Inelastic random seismic response analysis of unreinforced RC infilled frame structures  
*H. Al-Sadeq and Y. Matsushima (Japan)*

Discussions for a new result of seismic checking computation  
*C.-Y. He and J.-H. Zhang (China, Beijing)*



**1330 — 1400 Session I –2–201C : Invited Paper Room 201C**  
*Chairmen : Professor E. Watanabe, Kyoto University, Japan*  
*Professor Z. Xu, Tongji University, China, Beijing*

Complex topographical effects on wind characteristics, an opportunity for international collaborative research  
*A. N. L. Chiu and G. L. F. Chiu (U.S.A.)*

**1400 — 1515 Session I –2–201C : Bridge Engineering (ii) Room 201C**  
*Chairmen : Professor E. Watanabe, Kyoto University, Japan*  
*Professor Z. Xu, Tongji University, China, Beijing*

Structural design of arch bridges reflecting the form in a construction process  
*H. Narumi, N. Ishii, and Y. Fujino (Japan)*

Measurement of wheel loads using orthotropic steel deck  
*T. Ojio, K. Yamada, S. Kainuma, and T. Obata (Japan)*

Study on cable equivalent modulus of elasticity  
*P.-H. Wang, M.-J. Lee, and H.-I. Juang (China, Taipei)*

Torsional vibration analysis of suspension bridges based on linearized deflection theory  
*T. Hayashikawa, Y. Matsui, T. Inoue, and N. Watanabe (Japan)*

An example of new design structure for high fill bridge abutment on the soft ground  
*D.-W. Li and J.-F. Hu (China, Beijing)*

**1330 — 1400 Session I –2–201D : Invited Paper Room 201D**  
*Chairmen : Professor H. Okamura, University of Tokyo, Japan*  
*Professor C. Yu, Korea University, Korea*

Punching shear design of reinforced and post-tensioned concrete flat plates : are the major design code methods adequate?  
*Y.-C. Loo and H. Guan (Australia)*

**1400 — 1515 Session I –2–201D : Concrete Structures (i) Room 201D**  
*Chairmen : Professor H. Okamura, University of Tokyo, Japan*  
*Professor C. Yu, Korea University, Korea*

A new method to improve flexural ductility for RC interior column using severed reinforcing bars  
*H. Hotta and K. Takiguchi (Japan)*

Influence of concrete strength on ductility of RC flexural members, experimental study  
*A. R. Khaloo (Iran)*

Computational ductility of RC columns subjected to alternate actions  
*X. An and K. Maekawa (Japan)*

Flexural strength and ductility of PC beams with external prestressing  
*T. Aravinthan, H. Mutsuyoshi, and Y. Hishiki (Japan)*

Behavior of short corbels made of high and low strength concrete  
*I. A. E. M. Shehata, L. C. D. Shehata, and C. H. Naegeli (Brazil)*

**1330 — 1515 Session I –2–201E : Earthquake Engineering (ii) Room 201E**  
*Chairmen : Professor C.-S. Yeh, National Taiwan University, China, Taipei*  
*Professor X.-L. Zhang, Seismological Bureau of Jiangsu Province, China, Beijing*

Seismic design of structures with viscoelastic dampers  
*K. C. Chang and Y.-Y. Lin (China, Taipei)*

Experimental study on seismic performance of base-isolated structures  
*C.-B. Yun, W.-J. Chung, N.-S. Kim, and J.-W. Seo (Korea)*

Smart base isolation with shape memory alloy devices  
*P. Gardoni, K. Wilde, and Y. Fujino (Japan)*

Modal analysis of non-linear base isolation systems to seismic ground motion  
*C. J. Chang, J. F. Lee, and S. M. Wang (China, Taipei)*

Seismic response of base-isolated flexible buildings  
*T.-C. Pan and W. Cui (Singapore)*

A comparing study on seismic response between base isolated and base fixed frame  
*W. X. Shi and Z. S. Li (China, Beijing)*

Vibration test of tuned liquid damper and its equivalent mechanical model  
*D.-Y. Cai, A.-Q. Li, and W.-R. Cheng (China, Beijing)*

**1330 — 1400 Session I –2–201F : Invited Paper**

**Room 201F**

*Chairmen : Professor M. T. Wang, National Taiwan University, China, Taipei  
Mr. S. Saha, University of Western Sydney, Hawkesbury, Australia*

A call for a new concept of Asia through construction engineering and management  
*M. Kunishima (Japan)*

**1400 — 1515 Session I –2–201F : Construction Engineering & Management (ii)**

**Room 201F**

*Chairmen : Professor M. T. Wang, National Taiwan University, China, Taipei  
Mr. S. Saha, University of Western Sydney, Hawkesbury, Australia*

An analytical method for calculating construction management service fee  
*M.- T. Wang, J.-L. Shen, and T.-C. Chang (China, Taipei)*

Simulation of construction site operations: moving beyond traditional operations  
*S. Mohamed (Australia)*

Labor cost control information system  
*C. Charoenngam and P. Siengsuwan (Thailand)*

Let's establish the Asian renaissance in construction  
*K. Baba (Japan)*

Optimization model for decision makers on super-project management  
*C.-P. Lin, T. Watanabe, T. Yoshida, and M. Kunishima (Japan)*

**1515 — 1545 Coffee Break**

**1545 — 1730 Session I –3–201B : Analysis (iii)**

**Room 201B**

*Chairmen : Professor F. Tin-Loi, University of New South Wales, Australia  
Professor Z. Wu, Ibaraki University, Japan*

Simplified analysis of tube structures with multiple internal tubes  
*K.-K. Lee and Y.-C. Loo (Australia)*

Semicontinuum method and orthotropic plate method combined to analyze bridge deck with intermediate transverse beams  
*K.-S. Liu and L.-L. Hu (China, Beijing)*

Stiffened steel plate shear wall  
*A. Deylami (Iran)*

Ultimate bending strength of longitudinally stiffened plate girders  
*D. Bae and H.-S. Park (Korea)*

A new h-version of hybrid/mixed finite element method  
*M. Duan, Y. Miyamoto, S. Iwasaki, and H. Deto (Japan)*

Finite element analysis of unreinforced masonry - a parametric study on the effect of vertical load  
*Y. Zhuge (Australia)*

Study of the structural behaviour in slab-beam panels  
*N.-E. Chikh (Algeria)*

**1545 — 1730 Session I –3–201C : Bridge Engineering (iii)**

**Room 201C**

*Chairmen : Dr. K. Sugiura, Kyoto University, Japan*

*Professor P.-H. Wang, Chung-Yuan University, China, Taipei*

Structural characteristics and applicability of cable-stayed composite box girder bridges  
*M. Tomimoto, R. Gu, M. Nagai, Y. Okui, and H. Yamaguchi (Japan)*

Creep analysis of cable-stayed composite girder bridges  
*Y. Okui, A. Shimoda, M. Nagai, and H. Yamaguchi (Japan)*

Size effect in the anchorage strength for cables of suspension bridges  
*A. S. E. Morgan, J. Niwa, and T.-A. Tanabe (Japan)*

Optimal design parameters for bridge bearings for seismic protection  
*M. Abe and Y. Fujino (Japan)*

Seismic response prediction of HDR bearings using fractional derivative Kelvin model  
*J. S. Hwang and S. W. Ku (China, Taipei)*

A new movable floating arch bridge in Osaka harbor  
*T. Maruyama, E. Watanabe, T. Utsunomiya, and H. Tanaka (Japan)*

Hybrid simulation for a new movable floating bridge  
*K. Oda, T. Maruyama, H. Tanaka, S. Nagata, and S. Yamase (Japan)*

**1545 — 1730 Session I –3–201D : Concrete Structures (ii)**

**Room 201D**

*Chairmen : Professor K. Yamada, Nagoya University, Japan*

*Professor H.-Y. Cho, Pusan National University, Korea*

Evaluation of residual strength from the cracked sections of concrete beams  
*Y.-C. Kan (China, Taipei) and S. E. Swartz (U.S.A.)*

Eccentric compression test of R/C column using peripheral precast concrete blocks  
*T. Suzuki, K. Ikarashi, S. I. Miyashita, and Y. Hori (Japan)*

Flexural behavior and analysis of steel fiber reinforced concrete beams  
*B. H. Oh, H. J. Lee, S. W. Yoo, S. J. Jeon, and I. H. Yang (Korea)*

Three dimensional non-linear response and analysis of RC columns under multi-directional shear  
*T. Takahashi, B. Hauke, and K. Maekawa (Japan)*

Shear strength of reinforced concrete I-shape beam subjected to axial tension  
*A. Hisatsugi, T. Hara, T. Tamura, and K.-I. Nakashiki (Japan)*

Shear behavior of reinforced concrete beams containing steel fibers  
*B. H. Oh, D. H. Lim, K. O. Hong, S. W. Yoo, and H. S. Shin (Korea)*

Flexural capacity and effective stiffness of RC curve beams  
*M. S. Sheu, Y. W. Liou, Y. H. Chen, and H. W. Lee (China, Taipei)*

**1545 — 1730 Session I –3–201E : Earthquake Engineering (iii)**

**Room 201E**

*Chairmen : Professor C. Miki, Tokyo Institute of Technology, Japan*

*Professor K. C. Chang, National Taiwan University, China, Taipei*

Experimental performance of hysteretically-damped base-isolated systems  
*M.-S. Han, W.-P. Shih, and K.-C. Tsai (China, Taipei)*

Seismic responses of TADAS-LRB isolated structures  
*D.-S. Juang and H.-Y. Hsu (China, Taipei)*

An experimental study on viscous-damping walls  
*J. Jin, N. Yeung, A. D. E. Pan, and H. C. Chan (Hong Kong)*

Required initial stiffness ratio of MDOF systems with uniformly distributed seismic damage  
*Y. Nariyuki, K. Hirao, T. Sawada, and H. Yuan (Japan)*

Constant-damage strength demand spectra  
*P. Warnitchai and P. Panyakapo (Thailand)*

The whole new seismic-isolation of frame construction  
*T. Song, L. Wei, and J. Liu (China, Beijing)*

A scheme for seismic interaction between a multilayered half space and a long and slender body  
*P. Karasudhi (Thailand)*

**1545 — 1730 Session I –3–201F : Construction Engineering & Management (iii)**

**Room 201F**

*Chairmen : Professor C. Charoenngam, Asian Institute of Technology, Thailand*

*Professor H.-P. Tserng, National Taiwan University, China, Taipei*

An analytical model of selecting infrastructure procurement strategy: a financial view  
*M.-T. Wang and J.-L. Shen (China, Taipei)*

The impact of building services in real estate markets  
*R. K. Ryali and K. C. Lam (Hong Kong)*

Public construction organizations perform effectively in Hawaii  
*M. M. Shoura and A. Singh (U.S.A.)*

Materials wastage on commercial projects—a contractor's view  
*A. P. C. Chan (Hong Kong) and T. Y. F. Ma (Australia)*

Supervisor's kit: a site data capture system  
*S. Ogunlana and R. Marasini (Thailand)*

Automatic data processing technologies in construction  
*N.-H. Pan (China, Taipei)*

Using the modified fault tree network to identify troublesome activities for scheduling control  
*C. Lin (China, Taipei)*

## DAY II January 15, 1998

0830 — 1015 Session II-1-201B : Analysis (iv)

Room 201B

Chairmen : Professor W. Kanok-Nukulchai, Asian Institute of Technology, Thailand  
Professor S.-K. Yoon, Pusan National University, Korea

Analysis of thermal stress using monitoring system in temporary steel bridge  
*D. Chang, S. Lee, Y. Park, and J. Choi (Korea)*

Thermal stress analysis of epoxy to repair and strengthen of reinforced concrete  
*M.-C. Chen and W.-K. Chen (China, Taipei)*

Effect of reinforcement on thermal gradients in concrete elements  
*A. K. Aggarwal (Papua New Guinea)*

A degenerate element for large-displacement analysis of three-dimensional beams  
*E. Yamaguchi, M. Hammad, and Y. Kubo (Japan)*

Shape functions for a finite element with an embedded circular void  
*P. Nanakorn (Thailand)*

On formulation of three directional non-linear restoring force characteristic of a structure using the theory of plasticity  
*K. Takiguchi, N. Ogura, and S. Mu (Japan)*

Generalized kern of the sections  
*M. Mofid and M. R. Shadnam (Iran)*

0830 — 1015 Session II-1-201C : Bridge Engineering (iv)

Room 201C

Chairmen : Professor Z. Cywinski, Technical University of Gdansk, Poland  
Professor A. Deylami, Amirkabir University of Technology, Iran

Consideration of vibration serviceability limit state on pedestrian bridges based on human vibration sensibility  
*T. Obata, T. Hayashikawa, and K. Sato (Japan)*

Dynamic serviceability of monochord Iohse girder bridge with wide deck  
*M. Kawatani, K. Shimomura, I. Nozaki, F. Yamaguchi, and T. Yahata (Japan)*

Probabilistic estimation of vibration serviceability of highway bridges  
*M. Kawatani, T. Imaeda, and Y. Kobayashi (Japan)*

The effect of friction on the longitudinal shear force distribution along the steel-concrete interface of composite bridge beams  
*R. Seracino, D. J. Oehlers, and M. F. Yeo (Australia)*

An experimental study on structural properties of a steel-concrete hybrid frame bridge  
*N. Okubo, Y. Maeda, A. Abubaker, and S. Matsui (Japan)*

Countermeasures for cable-strand slippage during erection at the sub-towers of a suspension bridge  
*K.-I. Sugii, T. Shinoda, M. Hirose, Y. Sakamoto, and K. Nishimura (Japan)*

The origin and innovation of reinforced concrete (RC) composite highway bridges in P.R. China  
*Y. Wang (South Africa), H. Wei, Y. Xia, and D. Hu (China, Beijing)*

**0830 — 1015 Session II-1-201D : Concrete Structures (iii)**

**Room 201D**

*Chairmen : Professor R. I. Gilbert, University of New South Wales, Australia  
Professor Y. L. Mo, National Cheng-Kung University, China, Taipei*

Shear contribution of web reinforcement in reinforced concrete beams by the strut-and-tie model using the Euclidian minimum norm

*E. L. Mello and G. S. Melo (Brazil)*

Size effect in flexural and shear behavior of reinforced concrete members

*B. H. Oh, D. B. Kim, S. J. Jeon, and K. S. Kim (Korea)*

Design and analysis of anchorage zone in prestressed concrete girder using nonlinear strut and tie model

*H.-W. Song, H.-U. Bae, and K.-J. Byun (Korea)*

A new approach for the design of prestressed concrete transmission poles

*I.-W. Liu (China, Taipei)*

Equilibrium torsion of high-rise buildings

*Y.-T. Kuo, J. Shi, and T.-J. Pan (China, Taipei)*

Theoretical torsional capacity of high-strength concrete beams - general review

*T. A. Samman (Saudi Arabia)*

Analysis of prestressed concrete members subjected to short and long-term torsion

*B. H. Oh, C. K. Park, E. S. Kim, and S. T. Chae (Korea)*

**0830 — 1015 Session II-1-201E : Dynamic Analysis (i)**

**Room 201E**

*Chairmen : Professor C.-B. Yun, Korea Advanced Institute of Science and Technology, Korea  
Professor R. Y. Tan, National Taiwan University, China, Taipei*

Dynamic analysis of structures using continuous solutions in frequency domain

*C.-P. Yu (China, Taipei) and J. M. Roesset (U.S.A.)*

Inelastic dynamic analysis of building structures using a lumped model

*J. Kim, T. Yoon, J. Lee, and M. Cheong (Korea)*

Free vibrations of inclined cables with attached lumped masses

*S. Chucheeepsakul and B. Jeraruangrattana (Thailand)*

Free vibration analysis of perforated plates using equivalent elastic properties

*S. Choi and K.-H. Jeong (Korea)*

Vibration analysis of special orthotropic plate with a pair of opposite edges free and the other opposite edges elastic supported

*D.-H. Kim, D.-S. Shim, and S.-H. Kim (Korea)*

The dynamic response analysis of a circular plate on elastic foundation by extended finite Hankel transform method

*L.-Y. Wu and V. H. Lee (China, Taipei)*

Hydroelastic vibration of liquid - coupled coaxial cylindrical shells

*K.-H. Jeong, K.-B. Park, and S.-C. Lee (Korea)*

**0830 — 1015 Session II-1-201F : Construction Engineering & Management (iv)**

**Room 201F**

*Chairmen : Professor T. Yoshida, University of Tokyo, Japan  
Professor C.-L. Shing, Tamkang University, China, Taipei*

Quality function deployment of urban public facilities

*M.-T. Wang and C.-C. Lu (China, Taipei)*

Total quality management for the maintenance of M&E services in buildings  
*R. K. Ryali and K. C. Lam (Hong Kong)*

Quality assurance and constructability in building services planning and procurement  
*K. C. Lam, A. G. F. Gibb, and W. D. Sher (U.K.)*

Experiences with international quality standards (ISO 9000) in Thailand  
*S. Ogunlana (Thailand), A. Sutandi (Indonesia), and P. Phasukyud (Thailand)*

Judging the safety of construction excavations in volcanic rock  
*A. Singh and M. Connolly (U.S.A.)*

Expert system for “housing safety evaluations”  
*K.-Y. Wu and H.-M. Shieh (China, Taipei)*

Co-ordination problems in hospital buildings  
*K. C. Lam, A. G. F. Gibb, and W. D. Sher (U.K.)*

**1015 — 1045 Coffee Break**

**1045 — 1115 Session II-2-201B : Invited Paper Room 201B**  
*Chairmen : Professor C. K. Choi, Korea Advanced Institute of Science and Technology, Korea*  
*Professor D.-S. Juang, National Central University, China, Taipei*

A displacement-based formulation of nearly-incompressible fluid element for transient dynamic analysis of large-amplitude liquid sloshing  
*B. T. Tam and W. Kanok-Nukulchai (Thailand)*

**1115 — 1230 Session II-2-201B : Analysis (v) Room 201B**  
*Chairmen : Professor C. K. Choi, Korea Advanced Institute of Science and Technology, Korea*  
*Professor D.-S. Juang, National Central University, China, Taipei*

A hybrid finite shell element with internal displacement discontinuities  
*Z. Wu and J. Yin (Japan)*

Behavior of the steel truss element under bending and torsion  
*O. Morikawa, T. Shigematsu, T. Hara, and T. Tamura (Japan)*

Exact stiffness matrix of beam-columns including shear deformation on two-parameter elastic foundation  
*S. Chucheepsakul and S. Siriudompong (Thailand)*

Element stiffness matrix and second-order tensors  
*M. Mofid and A. Yavari (Iran)*

Finite element analysis of reinforced concrete walls  
*S. Fragomeni (Australia)*

**1045 — 1115 Session II-2-201C : Invited Paper Room 201C**  
*Chairmen : Professor Y. Fujino, University of Tokyo, Japan*  
*Dr. N. P. Kurian, Malaysia*

The trans-Tokyo bay highway project  
*H. Ikeda (Japan)*

**1115 — 1230 Session II-2-201C : Bridge Engineering (v) Room 201C**  
*Chairmen : Professor Y. Fujino, University of Tokyo, Japan*  
*Dr. N. P. Kurian, Malaysia*

A construction control method of cable-stayed bridge using the optical fiber sensors  
*M. Kamei, H. Furuta, T. Yokota, Y. Matsushita, and H. Tanaka (Japan)*

Role of transverse reinforcement on ductility and failure mode of RC bridge piers subject to earthquake motion - nonlinear 3D finite element approach

*K. H. Abdelkareem and M. Atsuhiko (Japan)*

Influence of input motion characteristics on inelastic behavior of RC bridge piers - a three dimensional finite element approach

*M. Atsuhiko and K. H. Abdelkareem (Japan)*

Construction of the steel pipe concrete tied-arch bridge

*Q.-J. Feng and S.-Y. Su (China, Beijing)*

A neural network system for inferring axial force of high-strength bolts on steel bridges

*I. Mikami, S. Tanaka, K.-I. Kano, and T. Hiwatashi (Japan)*

**1045 — 1115 Session II-2-201D : Invited Paper**

**Room 201D**

*Chairmen : Professor Y.-C. Loo, Griffith University, Australia*

*Professor T. Noguchi, University of Tokyo, Japan*

Structural design concept and background of concrete containment vessels for nuclear power plants in Japan

*Y. Aoyagi (Japan)*

**1115 — 1230 Session II-2-201D : Concrete Structures (iv)**

**Room 201D**

*Chairmen : Professor Y.-C. Loo, Griffith University, Australia*

*Professor T. Noguchi, University of Tokyo, Japan*

Pathological curves for steel deformation in reinforced concrete beams

*I. A. E. M. Shehata, L. C. D. Shehata, and L. A. Ventrini (Brazil)*

A study on deformation of reinforced concrete beams with shear reinforcement

*T. Ueda, T. Ito, K. Nishizono, Y. Sato, and Y. Kakuta (Japan)*

Deflection control of reinforced concrete slabs with high strength reinforcement

*R. I. Gilbert (Australia)*

Analysis of slender R-C columns at service loads

*M. A. Bradford (Australia)*

A study on stable limit against axial load in RC columns after flexural yielding

*H. Hotta, H. Ando, and K. Wakimoto (Japan)*

**1045 — 1115 Session II-2-201E : Invited Paper**

**Room 201E**

*Chairmen : Professor C.-C. Chern, National Taiwan University, China, Taipei*

*Professor T. A. Samman, King Abdulaziz University, Saudi Arabia*

Dynamic behavior of the bridge due to moving vehicles considering braking action

*S. P. Chang and J. W. Kwark (Korea)*

**1115 — 1230 Session II-2-201E : Dynamic Analysis (ii)**

**Room 201E**

*Chairmen : Professor C.-C. Chern, National Taiwan University, China, Taipei*

*Professor T. A. Samman, King Abdulaziz University, Saudi Arabia*

Dynamic analysis of a floating runway at airplane landing by FEM employing sponge layer

*E. Watanabe and T. Utsunomiya (Japan)*

Structural integrity of fuel assembly for pipe breaks

*M.-J. Jhung, Y.-W. Park, and S.-H. Song (Korea)*

Structural responses of railway viaducts for high-speed trains

*R. Y. Tan and J. H. Chang (China, Taipei)*

Effects of gap at expansion joint on traffic-induced vibration of highway bridge with roadway roughness  
*C.-W. Kim (Korea), M. Kawatani, and Y. Yamada (Japan)*

Effect of axle interactions on the dynamic response of the simple beam and vehicles moving over it  
*J. D. Yau and Y. B. Yang (China, Taipei)*

**1045 — 1230 Session II-2-201F : Construction Engineering & Management (v)**  
*Chairmen : Professor T. Watanabe, Kochi University of Technology, Japan*  
*Professor S.-J. Guo, National Taiwan University, China, Taipei*

**Room 201F**

Evaluation of change orders for highway projects in Taiwan  
*S.-J. Guo and H.-Y. Tai (China, Taipei)*

Bidding game and price prediction approach  
*T.-S. Wu and M.-T. Wang (China, Taipei)*

Study on information standardization for construction industry using CALS strategy  
*H.-P. Tserng, M.-T. Wang, and S.-H. Hsieh (China, Taipei)*

Decision support system for project scheduling under limited resources constraints  
*S.-S. Leu and C.-H. Yang (China, Taipei)*

Applicability domains of reengineering in the construction industry  
*A. S. Kazi (Thailand)*

A networking analysis approach to minimizing internalized costs of road construction projects  
*M.-T. Wang and J.-W. Wang (China, Taipei)*

Mathematical modelling of construction error and optimal inspection policy  
*S. K. Saha (Australia)*

**1230 — 1330 Lunch**

**1330 — 1515 Session II-3-201B : Analysis (vi)**  
*Chairmen : Professor I.-W. Lee, Korea Advanced Institute of Science and Technology, Korea*  
*Professor A. Wijeyewickrema, Asian Institute of Technology, Thailand*

**Room 201B**

Application of biological adaptive growth on optimal shape design of mechanical components or civil structures  
*K.-L. Hsu and T. Uomoto (Japan)*

Efficient numerical procedure for reanalysis of three-dimensional trusses  
*E. Yamaguchi, S. Taguchi, and Y. Kubo (Japan)*

Determination of geometry of material interface of an inclusion in a finite body by boundary parameterization  
*H. M. Koh, H. S. Lee, and C. J. Park (Korea)*

Multiobjective optimization of structure using modified  $\varepsilon$ -constraint approach  
*J.-T. Kim, S.-K. Park, and I. W. Lee (Korea)*

Evolutionary structural optimization: status and promise  
*Y. M. Xie, G. P. Steven, O. M. Querin, and D. Manickarajah (Australia)*

Combinatorial optimization of steel structures by importance sampling procedure  
*A. Sutoh and M. Hoshiya (Japan)*

On the identification of yield limits and hardening parameters by mathematical programming  
*F. Tin-Loi (Australia)*

**1330 — 1515 Session II-3-201C : Bridge Engineering (vi)**

**Room 201C**

*Chairmen : Professor C.-H. Loh, National Taiwan University, China, Taipei  
Professor Y. Itoh, Nagoya University, Japan*

Study on seismic resistance of steel pipe pier made of two different sections  
*J. Muller, C. Miki, and T. Sasaki (Japan)*

The study of ductility capacity of multi-span rigid frame bridges in longitudinal direction  
*I. C. Tsai and Z. C. Wu (China, Taipei)*

Elastic-plastic seismic behaviors of long span cable-stayed bridges  
*W.-X. Ren (Malaysia), M. Obata (Japan), and A. B. Mohamad Diah (Malaysia)*

Nonlinear seismic response of RC piers subjected to eccentric axial forces  
*S. Tsuchiya, H. M. Salem, and K. Maekawa (Japan)*

Dynamic characteristics of partially earth-anchored cable-stayed bridge under horizontal and vertical earthquake motions  
*T. Sugiyama (Japan)*

Nonlinear dynamic response analysis of steel bridge piers under seismic loading  
*T. Yoda, N. Kawaguchi, T. Moriyama, R. Matsuo, and K. Kasuga (Japan)*

A study on seismic failure mechanism of RC piers  
*M. Yamada and C. Miki (Japan)*

**1330 — 1515 Session II-3-201D : Concrete Structures (v)**

**Room 201D**

*Chairmen : Professor T. Ueda, Hokkaido University, Japan  
Professor R. R. Bhargava, University of Roorkee, India*

Prestress loss and displacement in prestressed high-performance concrete beams  
*J.-C. Chern, K.-F. Lo, and H.-S. Chiu (China, Taipei)*

A dynamic analysis of RC structure paying attention to the hysteresis energy of the bottom ends hinges of base columns  
*H. Hotta, J. Kusunoki, and A. Kurosaka (Japan)*

Dynamic behavior of RC columns subject to impact loading  
*H. Kojima, R. Kawase, K. Nakai, T. Niwa, Y. Sasaki, and N. Kishi (Japan)*

Seismic behavior of R/C columns confined with welded reinforcement grids  
*M. Saatcioglu, M. Grira, and C.-S. Choi (Korea)*

Investigation of the lateral displacement of concrete structures subjected to earthquake loads, using non-linear models  
*A. R. Rahai (Iran)*

Impact behavior of full scale RC beams  
*N. Kishi, M. Sato, H. Mikami, and K. G. Matsuoka (Japan)*

Prediction of damping in reinforced and partially prestressed concrete beams  
*S. H. Chowdhury and Y.-C. Loo (Australia)*

**1330 — 1515 Session II-3-201E : Dynamic Analysis (iii)**

**Room 201E**

*Chairmen : Professor K. Takiguchi, Tokyo Institute of Technology, Japan  
Professor M. Kawatani, Osaka University, Japan*

Vibration control of large structures using sliding mode fuzzy control  
*C.-B. Yun and S.-B. Kim (Korea)*

Application of viscoelastic dampers to wind vibration control of a cable supported structure  
*K.-C. Chang, C.-C. Hsu, and M.-L. Lai (China, Taipei)*

Practical considerations in TMD design for vibration control of buildings  
*J.-M. Ueng, C.-C. Lin, B.-R. Chen, and T.-C. Huang (China, Taipei)*

Simplified analysis of a tall building with the mega-subcontrol system  
*Y.-H. Song and J. Kim (Korea)*

An unified dynamic absorber design for suppression of tall building vibration  
*C.-C. Chang (Hong Kong)*

Vibration control of multistory buildings using mega-segment as tuned mass damper  
*J. F. Jiang and B. S. Wang (China, Beijing)*

**1330 — 1515 Session II-3-201F : Construction Engineering & Management (vi)**  
*Chairmen : Mr. K. C. Lam, Hong Kong Polytechnic University, Hong Kong*  
*Professor A. Singh, University of Hawaii at Manoa, U. S. A.*

**Room 201F**

Localization of industrialized construction method for blocks of flats  
*T. Yashiro (Japan)*

Precast reinforced concrete building construction procedures for northern Thailand  
*T. Waroonkun (Thailand), Y. C. Loo, and S. H. Chowdhury (Australia)*

Use of universal mill plates made by electric arc furnace process to railway truss bridges  
*N. Fukushima, Y. Sakai, S. Yamada, H. Nemoto, and T. Hosaka (Japan)*

A computer aided shop assembling simulation system for steel girder bridges  
*K. Fujita, M. Nakamura, and N. Koguchi (Japan)*

Collapse of an arch bridge during construction  
*S.-W. Poon, Y. Zhang, and Y.-S. Wang (Hong Kong)*

The planning, design, fabrication and field construction of hot dip galvanized steel bridge in Taiwan  
*J. M. Chuang (China, Taipei)*

Investigation on the constructability and performance of prospective materials for repair of airfield damaged concrete  
*M.-G. Lee (China, Taipei), C.-T. Shih, and M. Tia (U.S.A.)*

**1515 — 1545 Coffee Break**

**1545 — 1730 Session II-4-201B : Analysis (vii)**  
*Chairmen : Professor M.-H. Nam, Gyeongsang National University, Korea*  
*Professor C.-C. Chang, Hong Kong University of Science and Technology, Hong Kong*

**Room 201B**

Estimations of saturated-unsaturated flow rate using optimization and shaping  
*A. R. Kacimov (Russia) and N. Fujii (Japan)*

MPE++: an objected-oriented mesh partitioning environment in C++  
*S.-H. Hsieh, Y.-S. Yang, W.-C. Cheng, M.-D. Lu (China, Taipei), and E. D. Sotelino (U.S.A.)*

WWW and the effect on the underground pipelines in excavation  
*Y.-P. Huang, C.-F. Tseng, C.-R. Tseng, and W.-C. Lin (China, Taipei)*

A neural network system for predicting ultimate strength of steel orthogonally stiffened plates under uniaxial compression

*K. Niwa and I. Mikami (Japan)*

Allocating bridge piers using expert systems and geographical information systems techniques

*N.-J. Yau and J.-S. Lee (China, Taipei)*

A study on database system of earthquake hazard based on GIS

*O. Tsujihara, T. Yamamura, T. Sawada, and K. Hirao (Japan)*

SSCDDDB – a symbolic and constraint-based design templates base for structural steel connections

*C.-Y. Lee and S.-C. Chang (China, Taipei)*

**1545 — 1730 Session II–4–201C : Bridge Engineering (vii);  
Reliability Analysis and Design**

**Room 201C**

*Chairmen : Professor D. Chang, Hanyang University, Korea*

*Professor T. Hayashikawa, Hokkaido University, Japan*

Effect of vertical ground motions on the seismic response of bridges

*C.-P. Yu, D. S. Broekhuizen, J. M. Roesset, and J. E. Breen (U.S.A.)*

Nonlinear analysis of RC bridge pier due to strong earthquake motions

*J. Shimabuku and H. Takemiya (Japan)*

Cyclic loading tests on the shear reinforcement of wall-type piers

*K. Yoshida, Y. Ninomiya, T. Tanimoto, T. Iwabuchi, and H. Yokoyama (Japan)*

Failure probability of steel columns under stochastic loads

*C. Q. Li (Australia)*

A practical analysis method for the structural reliability in generalized random space

*G. Zhao, T. Liu, and H. Wang (China, Beijing)*

Limit state surface approach for framed structural systems

*Y. Zhao and T. Ono (Japan)*

Safety criteria of structures

*D.-Q. Pu and X.-L. Liu (China, Beijing)*

**1545 — 1730 Session II–4–201D : Fracture**

**Room 201D**

*Chairmen : Professor T.-T. Wu, National Taiwan University, China, Taipei*

*Professor L. S. Timiovska, Institute of Earthquake Engineering and Engineering  
Seismology, Macedonia*

Materially nonlinear analysis of stress singularity problems by p-version of F.E.M.

*W.-S. Jung, C.-H. Hong, K.-S. Woo, and Y.-S. Shin (Korea)*

Fatigue crack growth behavior of structural steel after periodic overload and variable amplitude block loading

*K. Yamada, N. Okado, Q.-L. Cao, and S. Kainuma (Japan)*

Dugdale model solution for two equal circular arc cracks with coalesced plastic zones

*R. R. Bhargava and N. K. Tyagi (India)*

Recent advances in numerical simulation of stable crack growth and residual strength prediction

*C.-S. Chen, P. A. Wawrzynek, and A. R. Ingraffea (U.S.A.)*

Using numerical image processing (NIP) to evaluate concrete and steel fracture parameter of photoelastic fringes

*C.-W. Chang and Y.-M. Lu (China, Taipei)*

Fatigue and fracture properties of steel deck-plate in thickness direction  
*F. Fahimuddin, C. Miki, K. Anami, H. Ohashi, and F. Machida (Japan)*

Creep fracture of rock  
*Y. Chen and J. Sun (China, Beijing)*

**1545 — 1730 Session II-4-201E : Stability and Scaffolding Engineering**

**Room 201E**

*Chairmen : Professor M. A. Bradford, University of New South Wales, Australia  
Professor H. Hotta, Tokyo Institute of Technology, Japan*

Nonlinear elastic behaviour of thin-walled beams curved in plan  
*Y.-L. Pi and N. S. Trahair (Australia)*

Stability analysis of single rolled section struts under eccentric loads  
*S.-G. Lee, Y.-J. Na, and S.-C. Kim (Korea)*

Inelastic buckling behaviors of long-span cable-stayed bridges and its stability check  
*K. Nogami, M. Nagai, H. Kinoshita, and Y. Fujino (Japan)*

Stability analysis of eccentrically loaded reinforced concrete column  
*B. Diao (Hong Kong), Y.-H. Ye (China, Beijing), and S.-S. E. Lam (Hong Kong)*

Investigation of load pattern and path effects during construction  
*J.-L. Peng, T. Yen, Y. Lin, and Q.-L. Wu (China, Taipei)*

The optimal shape and bracing way for scaffold shores  
*Y. L. Huang, T. Yen, and Y. F. San (China, Taipei)*

Structural behavior of bamboos for access scaffolding in Hong Kong  
*S. W. Poon and S. L. Chan (Hong Kong)*

**1545 — 1730 Session II-4-201F : Fatigue**

**Room 201F**

*Chairmen : Professor Y.-T. Kuo, National Cheng Kung University, China, Taipei  
Dr. H. Ge, Nagoya University, Japan*

Improving method of fatigue life of web gap plate by semi-circular cut-out  
*S. Kainuma, K. Yamada, N. Kagawa, T. Nishioka, and H. Ishii (Japan)*

Fatigue tests of gusset-welded specimens with side static load  
*K. Yamada, S. Kainuma, M. Suzuki, and A. Kondo (Japan)*

A study on fatigue strength improvement methods of welded joints  
*K. Anami and C. Miki (Japan)*

Fatigue strength of tensile plates with side gussets subjected to transverse static load  
*K. Yamada, H. Tanaka, N. Okado, and A. Kondo (Japan)*

An experimental study on the fatigue strength of steel fiber reinforced concrete beams with initial cracks  
*D.-I. Chang, H.-H. Lee, W.-K. Chai, K.-H. Cho, K.-I. Kim, and Y.-H. Son (Korea)*

Long life fatigue tests of cruciform joint under variable amplitude loading  
*A. Kondo, K. Yamada, and X. Cheng (Japan)*

Effect of asphalt pavement on local stresses and fatigue durability of orthotropic steel deck  
*K. Nishikawa, J. Murakoshi, X. Cheng, and H. Ohashi (Japan)*

**1800 — 2000 Conference Banquet**

## DAY III January 16, 1998

### 0830 — 1015 Session III-1-201B : Steel Structures

Room 201B

*Chairmen : Professor N. S. Trahair, University of Sydney, Australia*

*Professor H. C. Chan, University of Hong Kong, Hong Kong*

Effective length factor of frames with mixed use of rigid and semi-rigid connections

*M. Komuro, N. Kishi, Y. Goto (Japan), and W.-F. Chen (U.S.A.)*

Cyclic behavior of steel box column with internal cross braces

*H.-L. Hsu and J.-L. Juang (China, Taipei)*

Experimental study on strength and ductility of steel box columns with perforated webs under cyclic loading

*M. Nakamura, K. Fujii, and M. Uenoya (Japan)*

Design of fixed-ended cold-formed lipped channel columns

*B. Young and K. J. R. Rasmussen (Australia)*

Experimental study for non-sway steel frame with flush end-plate connections

*S.-M. Lau (Hong Kong)*

Design of patch loaded web plates

*S. Shimizu (Japan)*

### 0830 — 1015 Session III-1-201C : Wind Engineering (i)

Room 201C

*Chairmen : Professor A. N. L. Chiu, University of Hawaii at Manoa, U.S.A.*

*Professor Y. Okui, Saitama University, Japan*

Finite element analysis of wind-structure interaction

*C.-K. Choi, H.-K. Kwak, and W.-J. Yu (Korea)*

Flutter stabilization of super-long span bridge - aerodynamic characteristics of tandem rectangular cylinders

*M. Matsumoto, K. Abe, F. Yoshizumi, T. Yabutani, and K. Gotoh (Japan)*

Global aerodynamic analysis of long-span bridges in time domain

*V. Boonyapinyo (Thailand), T. Miyata, and H. Yamada (Japan)*

Direct frequency-domain buffeting analysis of long-span bridges by complex functions

*N. N. Minh, T. Miyata, and H. Yamada (Japan)*

An aeroelastic phenomenon induced by lateral-torsional coupling

*C.-M. Cheng, P.-C. Lu, and M.-W. Tsai (China, Taipei)*

Performance of multiple tuned mass dampers for suppressing wind-induced vibrations of long-span bridges

*Y. Y. Lin, C. M. Cheng, and D. Sun (China, Taipei)*

Static and dynamic instability behaviors of long-span cable-stayed bridges under wind load

*M. Nagai, T. Ishida, X. Xie, H. Yamaguchi, and Y. Fujino (Japan)*

### 0830 — 1015 Session III-1-201D : Composite Structures (i)

Room 201D

*Chairmen : Professor S.-M. Park, Yeungnam University, Korea*

*Professor Y. Lin, National Chung-Hsing University, China, Taipei*

A study on shear friction strength of steel reinforced concrete (SRC) beams

*C. C. Weng, S. I. Yen, and Y. L. Cheng (China, Taipei)*

Shear strength of SRC member concerning bond stress between steel and concrete

*H. Hotta, H. Kihara, and K. Takiguchi (Japan)*

On the prediction of compressive strength of steel reinforced concrete (SRC) columns  
*C. C. Weng, S. I. Yen, and C. C. Liang (China, Taipei)*

Performance of steel reinforced concrete members with welded wire fabric  
*H.-L. Hsu and J.-F. Wang (China, Taipei)*

Strength and deformation capacity of steel reinforced concrete beam-columns subjected to vertical and horizontal loads  
*C. Matsui, K. Tsuda, and L. Li (Japan)*

Time-dependent behavior of preflex beam  
*D.-B. Bae, K.-M. Lee, and J.-W. Jun (Korea)*

Experimental studies of steel reinforced concrete columns and its application to tall buildings  
*W.-R. Cheng and Z.-F. Chen (China, Beijing)*

**0830 — 1015 Session III-1-201E : Earthquake Engineering (iv)**

**Room 201E**

*Chairmen : Professor P. Warnitchai, Asian Institute of Technology, Thailand*

*Professor P. T. Y. Chang, Hong Kong University of Science and Technology, Hong Kong*

An analysis of damage to Hanshin elevated expressway during the 1995 Kobe earthquake  
*Y. Fujino, M. Abe, and S. Abe (Japan)*

Structural damage evaluation of elastic-supported simple beams from dynamic-test data  
*J. Jeon (Korea), E. Choi (U.S.A.), H. Kim, and D. Chang (Korea)*

Studies in bridge damage detection using genetic algorithm  
*J.-H. Chou and J. Ghaboussi (U.S.A.)*

Damage analysis of reinforced concrete columns under multi-directional earthquake excitations  
*S. Parche and F. Stangenberg (Germany)*

Seismic demand for SDOF system based on structural damage control concept  
*W.-Y. Jean and C.-H. Loh (China, Taipei)*

Preliminary application of fuzzy concept to building damage prediction  
*L. S. Timiovska (Macedonia)*

A method for selecting attenuation relation of ground motion  
*X.-L. Zhang and X.-Y. Yan (China, Beijing)*

**0830 — 1015 Session III-1-201F : Construction Materials (i)**

**Room 201F**

*Chairmen : Professor T. Uomoto, University of Tokyo, Japan*

*Professor B.-W. Jo, Hanyang University, Korea*

Effect of size of specimen on compressive strength of concrete (III)  
*S. Rungthongbaisuree (Thailand)*

Influence of steel fiber and silica fume on the properties of shotcrete  
*D.-I. Chang, W.-K. Chai, K.-H. Cho, K.-I. Kim, and Y.-H. Son (Korea)*

The effect of particle size of sand on transition zone and compressive strength of cement composites  
*Y. Kato and T. Uomoto (Japan)*

Role of chemical composition in strength development of fly ash-concrete  
*P. Nimityongskul and M. A. Tahir (Thailand)*

Influence of very fine fly ash and condensed silica fume on high compressive strength of mortar  
*E. Angsuwatana, C. Jaturapitakkul, A. Siripanchorn, K. Kiattikomol, and T. Ketratanaborvorn (Thailand)*

Properties of high-performance concretes containing milled limestone  
*D. G. Montgomery, B. K. Van, I. Hinczak, and K. Turner (Australia)*

Pore pressure in high performance concrete subjected to high temperatures  
*J.-C. Chern, B. Miao, and C.-A. Yang (China, Taipei)*

**1015 — 1045 Coffee Break**

**1045 — 1230 Session III-2-201B : Nondestructive Testing**

**Room 201B**

*Chairmen : Professor T. Mikami, Hokkaido University, Japan*

*Professor D. J. Oehlers, University of Adelaide, Australia*

Detecting flaws in composite columns using the impact-echo method  
*C. Hsiao, Y. Lin, and C. Chang (China, Taipei)*

Application of acoustic emission technique for crack monitoring of RC beams  
*T. Kamada, M. Iwanami, and S. Nagataki (Japan)*

Measurements of in-situ wave velocities of concrete using a portable transient elastic wave system  
*T.-T. Wu and J.-H. Tong (China, Taipei)*

Numerical simulation of nondestructive parallel seismic test for piles  
*S. T. Liao (China, Taipei), J. M. Roesset (U.S.A.), and C.-H. Chen (China, Taipei)*

Causes of errors in measurement of the depth of surface-opening cracks in concrete structures  
*Y. Lin and T. Liou (China, Taipei)*

The transient impact responses near the corner of bridge box-girders  
*C.-C. Cheng (China, Taipei) and M. Sansalone (U.S.A.)*

A dynamic backcalculation for FWD deflection test on flexible pavements  
*D.-W. Chang and C.-L. Chang (China, Taipei)*

**1045 — 1230 Session III-2-201C : Wind Engineering (ii); System Identification**

**Room 201C**

*Chairmen : Professor M. Matsumoto, Kyoto University, Japan*

*Professor C.-M. Cheng, Tamkang University, China, Taipei*

Estimation of extreme winds at ungauged sites  
*E. D. H. Cheng and A. N. L. Chiu (U.S.A.)*

Wind tunnel and analytical study on a section model of ice-accreted 4 bundled conductor transmission lines  
*K. Kimura, N. Tanaka, Y. Fujino, T. Yukino, and H. Inoue (Japan)*

An identification of impact load acting on beams by extended Kalman filter  
*T. Shibata, T. Mikami, A. Sutoh, and N. Nirasawa (Japan)*

Substructural identification of bridge  
*Z.-K. Lee and C.-H. Loh (China, Taipei)*

A parameter estimation algorithm by energy formulation from static response  
*I. H. Yeo, S. P. Chang, and H. S. Lee (Korea)*

A system identification scheme for damage detection in elasto-plastic materials  
*H. S. Lee, S. Shin, and H. W. Park (Korea)*

Dynamic tests and identification of Fei-Tsui Arch Dam  
*T.-S. Wu, L.-Y. Lu, and C.-H. Loh (China, Taipei)*

**1045 — 1230 Session III-2-201D : Composite Structures (ii)**

**Room 201D**

*Chairmen : Professor S.-G. Lee, Chonnam National University, Korea*

*Professor C. C. Weng, National Chiao Tung University, China, Taipei*

Limiting axial compressive force and structural performance of concrete filled steel square tubular beam-columns

*K. Tsuda, C. Matsui, Y. Yamaji, and T. Fujinaga (Japan)*

Proposed buckling strength formula for concentrically-loaded concrete-filled circular steel tube columns

*J. Chung, K. Tsuda, and C. Mastui (Japan)*

Experiments on ductility capacity of continuous CFST-beams with unbonded-tendons

*K. Maegawa, H. Yoshida, and H. Kamimura (Japan)*

Load carrying capacity of concrete filled steel square tube column

*C.-H. Kim, J.-Y. Park, B.-S. Lee, and H. Jeong (Korea)*

A study on the structural behavior of concrete-filled steel box sections

*Y.-B. Kwon and J.-Y. Song (Korea)*

On the strength interaction diagrams for steel-concrete composite columns

*J. Q. Zhang and M. Chao (Australia)*

Strength and ductility of filled steel composite stub columns under compression

*E. Watanabe, K. Sugiura, and W. Oyawa (Japan)*

**1045 — 1230 Session III-2-201E : Earthquake Engineering (v)**

**Room 201E**

*Chairmen : Professor T.-C. Pan, Nanyang Technological University, Singapore*

*Professor T. Yoda, Waseda University, Japan*

Indicator kriging of earthquake ground motion displacement

*K. Yamamoto, H. Ohno, and M. Hoshiya (Japan)*

Inelastic design spectra for weak and moderate earthquakes

*S.-D. Kim, M.-H. Kim, and W.-K. Hong (Korea)*

A simplified fixed-base model for soil-structure interaction analysis

*W.-H. Wu (China, Taipei)*

The effects of soil-structure interaction on the dynamics of 3-d flexible rectangular tanks

*J. K. Kim, J. Y. Park, and B. M. Jin (Korea)*

Effect of foundation interaction on inelastic response of RC piers

*K. Hirao, T. Sawada, Y. Nariyuki, and S. Sasada (Japan)*

Shaking table tests of base isolators for reducing subway train-induced vertical vibrations

*J. Kim, Y. Song, and Y. Huh (Korea)*

**1045 — 1230 Session III-2-201F : Construction Materials (ii)**

**Room 201F**

*Chairmen : Professor A. K. Aggarwal, PNG University of Technology, Papua New Guinea*

*Professor T.-P. Chang, National Taiwan University of Science and Technology, China,*

*Taipei*

Experimental study on the effects of rebar and matrix properties on the gaps at the interfacial transition zones in reinforced concrete

*N. Otsuki, M. Hisada, N. B. Diola, and N. Kobayashi (Japan)*

Hydration and strength development of Portland cement cured under high temperature  
*J. Morimoto and T. Uomoto (Japan)*

Experimental study for the development of vibration-controlled concrete  
*Y.-S. Chung, D. H. Lee, and W.-S. Choi (Korea)*

The control of early-age cracking in high strength concrete  
*Y.-W. Chan and Y.-S. Lu (China, Taipei)*

Chloride ion induced corrosion of stirrup in concrete  
*T. Uddin Md., N. Otsuki, M. Hisada, and N. Sakamaki (Japan)*

Rheology of self-compacting concrete passing through reinforcements  
*S.-G. Oh, T. Noguchi, and F. Tomosawa (Japan)*

A rational mix-design method for mortar in self-compacting concrete  
*M. Ouchi, M. Hibino, K. Ozawa, and H. Okamura (Japan)*

**1230 — 1330 Lunch**

**1330 — 1515 Session III-3-201B : Material Modeling (i)**

**Room 201B**

*Chairmen : Professor J.-C. Chern, National Taiwan University, China, Taipei  
Professor A. Machida, Saitama University, Japan*

Micro-physical approach to coupled autogenous and drying shrinkage of concrete  
*T. Ishida, R. P. Chaube, and T. Kishi (Japan)*

Numerical simulation of shotcrete rebound and its voids inspection by 2D-DEM considering real size distinct element particle grading  
*U. C. Puri and T. Uomoto (Japan)*

Fundamental study on mechanism of shotcrete – application of 2D-DEM for estimation of rebound  
*T. Maki and T. Uomoto (Japan)*

Strength evaluation of fly ash aggregate  
*S. Tangtermsirikul and A. C. Wijeyewickrema (Thailand)*

Computational model for tension stiffness of cracked reinforced concrete derived from micro-bond characteristics  
*H. M. Salem and K. Maekawa (Japan)*

Plastic plateau and axial effect in cyclic experiments of low carbon steel  
*Y.-P. Shiao (China, Taipei), H.-C. Wu (U.S.A.), and H.-K. Hong (China, Taipei)*

Hysteretic structures under multi-dimensional cyclic excitations  
*C.-S. Liu and H.-K. Hong (China, Taipei)*

**1330 — 1515 Session III-3-201C : Repairs, Strengthening, and Maintenance (i)**

**Room 201C**

*Chairmen : Professor M.-S. Sheu, National Cheng-Kung University, China, Taipei  
Professor T. Tsubaki, Yokohama National University, Japan*

Repair of damaged short corbels  
*I. A. E. M. Shehata and S. V. T. Junior (Brazil)*

Strengthening of flat slabs in punching shear  
*I. A. E. M. Shehata and D. P. Dias (Brazil)*

Evaluation of strengthening methods of reinforced concrete beams  
*I. A. E. M. Shehata, L. C. D. Shehata, P. B. Coelho, D. P. Michel, L. B. Freitas, and M. C. Morais (Brazil)*



A study of allowable design of geosynthetic mechanically stabilized earth retaining wall per design criteria of FHWA  
*K.-H. Chen, K.-C. Miao, and H.-H. Lee (China, Taipei)*

**1330 — 1515 Session III–3–201F : Construction Materials (iii)**

**Room 201F**

*Chairmen : Professor F. Tomosawa, University of Tokyo, Japan*

*Professor Y.-W. Chan, National Taiwan University, China, Taipei*

Role of viscosity agent in self-compactability of fresh concrete

*M. Hibino, M. Okuma, and K. Ozawa (Japan)*

A study on prediction of bond strength of continuous fiber sheet

*Y. Sato, Y. Asano, T. Maeda, A. Kobayashi, T. Ueda, and Y. Kakuta (Japan)*

Influences of notch, temperature and strain rate on mechanical properties of steel

*T. Ono, M. Iwata, Y. Nakamura, and E. Ito (Japan)*

Creep rupture of FRP rods made of aramid, carbon and glass fibers

*T. Yamaguchi, T. Nishimura, and T. Uomoto (Japan)*

Analysis of stability and failure in compression of composites with various kinds of interfacial defects

*I. A. Guz (Ukraine)*

Development of structural steels for buildings in Japan

*H. Kuwamura (Japan)*

Corrosion of existing steel building in Thailand

*S. Rungthongbaisuree (Thailand)*

**1515 — 1545 Coffee Break**

**1545 — 1730 Session III–4–201B : Material Modeling (ii);  
Bridge Engineering (viii)**

**Room 201B**

*Chairmen : Professor K. Maekawa, University of Tokyo, Japan*

*Mr. M.-D. Qiu, Guangdong Huiyang Building Design Institute, China, Beijing*

Elastic moduli for plane stress in orthotropic granular material with different fabric diagrams

*T.-P. Chang, L.-Y. Huang, and S.-H. Lin (China, Taipei)*

The mechanism of frost damage from the viewpoint of pore structures

*S. Okamoto and T. Uomoto (Japan)*

Effect of fiber type on the mechanical behavior of steel fiber reinforced concrete subjected to uniaxial tension

*T. Tsubaki and S. Sumitro (Japan)*

Evaluation and reduction of welding residual stress

*C.-K. Lim, K. Anami, and C. Miki (Japan)*

Spring-Coulomb damping oscillator revisited

*H.-K. Hong and C.-S. Liu (China, Taipei)*

Application of spherical bearing on the bridges of Huangpu River in Shanghai

*S. Zhang, G. Li, and J. Zhuang*

Design and construction of symmetric and synchronous swing technology of arch bridge

*R. Zhou, J. Deng, S. Yang, M. Huang, and Y. Zhang*

**1545 — 1730 Session III-4-201C : Repairs, Strengthening, and Maintenance (ii) Room 201C**  
*Chairmen : Professor B. H. Oh, Seoul National University, Korea*  
*Professor S.-H. Hsieh, National Taiwan University, China, Taipei*

Shake table test and performance evaluation of a post-seismic repaired and retrofitted concrete bridge bent with fiber glass wrapping  
*G. Chen and R. Sexsmith (Canada)*

Short-term behavior and analysis of strengthening and repair of cracked RC beam by externally patched flexible FRP tow-sheets  
*C.-Y. Wang, F.-S. Ling, and M.-C. Sun (China, Taipei)*

Strengthening of RC-columns - a three dimensional computational approach  
*B. Hauke and K. Maekawa (Japan)*

On experimental study of steel stiffened wooden beams  
*N. Watanabe, S. Usuki, and O. Watanabe (Japan)*

Determination of maintenance time for concrete structures  
*C. Q. Li (Australia)*

Predictive maintenance through used oil analysis: applications and limitations for the UK construction plant sector  
*D. J. Edwards, G. D. Holt, and F. C. Harris (U.K.)*

**1545 — 1730 Session III-4-201D : Highrise Buildings; Natural Hazards Room 201D**  
*Chairmen : Professor E. D. H. Cheng, University of Hawaii at Manoa, U.S.A.*  
*Professor I. C. Tsai, National Taiwan University, China, Taipei*

Capacity assessment on high-rise R.C. frame by pseudo-elastic equal drift approach  
*C.-C. Chern and W.-H. Lee (China, Taipei)*

The optimization of plan of the super high-rise RC building structure  
*K. Men, M.-D. Qiu, Q.-R. Sha, and Y.-G. Li (China, Beijing)*

Inelastic analysis of tall reinforced concrete buildings  
*S.-D. Kim, W.-K. Hong, and Y.-K. Ju (Korea)*

Dynamic alongwind response of tall building to fluctuating wind load  
*Y.-M. Kim, J.-S. Kim, S.-D. Kim, and J.-S. Oh (Korea)*

Applications of probabilistic typhoon and wind analysis in the performance-based engineering of high-rise buildings  
*G. Y. K. Chock and D. W. Boggs (U.S.A.)*

Computer aided optimal sizing technique for tall reinforced concrete building design  
*C.-M. Chan and P. T. Y. Chang (Hong Kong)*

Natural hazards: bridging the engineering and property insurance communities  
*G. L. F. Chiu (Hong Kong)*

**1545 — 1730 Session III-4-201E : Geotechnical & Foundation Engineering (ii); Pavement Engineering Room 201E**  
*Chairmen : Professor Y. B. Kwon, Yeungnam University, Korea*  
*Professor L.-Y. Wu, National Taiwan University, China, Taipei*

Assessment of reinforce effect of soil liquefaction foundation for bridge  
*X.-L. Zhang, Y.-L. Huang, and X.-H. Zhang (China, Beijing)*

Foundation engineering with the method of soil thermal stabilization by microwave energy  
*A. Z. Zhushupbekov, V. V. Jousoupbekova (Kazakhstan), L. A. Babin, O. L. Denisov, and J. I. Spektor (Russia)*

Comparative behaviour of displacement and replacement piles under axial load  
*N. P. Kurian (Malaysia) and G. Seetharamayya (India)*

Development of temperature control system for massive machine foundation  
*S.-H. Lee, Y.-H. Son, K.-I. Kim, B.-K. Kim, J.-B. Lee, and T.-N. Huh (Korea)*

Design and research of high-rise building's composite foundation with rigid pile  
*M. Tao (China, Beijing)*

Applications and development of cement injecting piles (CIPs) in Pearl Delta Area of P. R. China  
*Z. Xie, M. Li, and B. Li (China, Beijing)*

Experimental study for the characteristics of snow removal on the pavement structure  
*B.-W. Jo and J.-Y. Hwang (Korea)*

**1545 — 1730    Session III-4-201F    :    Construction Materials (iv); Connections and Joints    Room 201F**  
*Chairmen : Professor S.-J. Hwang, National Taiwan University of Science and Technology, China, Taipei*  
*Professor I. A. E. M. Shehata, COPPE/UFRJ, Brazil*

Propriety for extrusion moulding of cementitious materials with advanced fibers  
*A. Mori and A. Baba (Japan)*

Densification of cementitious materials by extrusion moulding with advanced fibers and their flexural strength  
*A. Baba and A. Mori (Japan)*

Composite effect of half precast beam and slab  
*S.-H. Kim, G.-S. Ju, and S.-M. Park (Korea)*

A study on strength of horizontal shear connections between half precast beam and slab  
*J.-G. Park, G.-S. Ju, and S.-M. Park (Korea)*

A new approach to devise connection classification system  
*R. Hasan, N. Kishi (Japan), and W.-F. Chen (U.S.A.)*

**1740 —1810    Closing Ceremony**

**Room 101**