

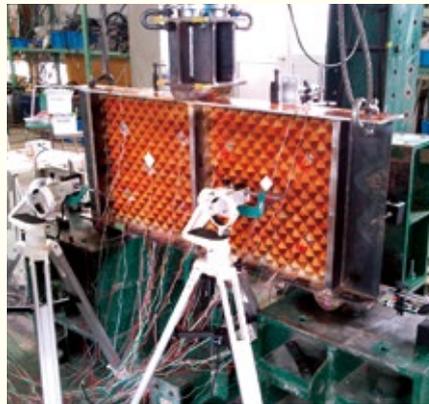


## Research Profile Series (18)

### Structural Mechanics and Dynamics Group

The structural mechanics and dynamics group (SMDG) is an educational and research group within the Department of Civil and Environmental Engineering, Saitama University, which is led by Professors Hiroki Yamaguchi, Yoshiaki Okui, Yasunao Matsumoto, and Asst. Prof. Ji Dang. This group also includes four doctoral, seven master's, and ten undergraduate students. SMDG has international collaborations with faculty members from partner universities sharing advancements in research.

The research activities at SMDG are mainly in the field of structural engineering, which deals with the design, construction, monitoring, and maintenance of structural systems. Although the structural engineering field is broad and multidisciplinary, the research activities at SMDG include the subfields of engineering mechanics, structural dynamics, and human response to vibration and noise. The research in engineering mechanics is concerned with the behavior and modeling of high-damping rubber bearings, plate buckling of normal and high-performance bridge steel, and the mechanical properties of steel plate girders with structured webs. The research in the structural dynamics field encompasses the evaluation of energy-based damping, the modal damping ratio as damage indicator in structural systems, the gust response of transmission lines, the seismic performance of steel bridges, and the response of isolated bridges to seismic loads. Human response to vibration and noise is gaining attention because of the increasing generations of vibration and noise from industry, infrastructures, and other sources, which are a cause of annoyance to humans. Ongoing research in the field includes the subjective response of humans to building vibration, the dynamic interaction between structure and humans, the prediction of environmental vibration due to traffic-induced bridge vibration, and the control of environmental vibration due to construction work.



There are state-of-the-art laboratory facilities for experiments related to the above research activities. The group is also equipped with the latest software for numerical modeling and simulations. SMDG provides an excellent research environment for learning and professional growth.

Prestressed concrete (PC) bridges are an intrinsic part of road infrastructure and subject to deterioration that may not be detected during periodic visual inspections, which could lead to catastrophic collapse. As part of my master's thesis, I decided to pursue research related to the vibration-based structural health monitoring of bridges, as a detection method of such invisible damages. Owing to structural damages, changes in mass, stiffness, and damping properties are expected to result in changes in dynamic characteristics, such as natural frequency, mode shape, and modal damping ratio. The research objectives are to demonstrate the reliable identification of modal damping ratios of PC bridges and the feasibility of using low-cost wireless sensors.

(Written by Mr. Sheharyar e Rehmat)

## Graduation Time Congratulations

### September 2013

**Mr. Do Duy Dinh** from Vietnam was awarded his Ph.D. degree under the guidance of Prof. H. Kubota.

**Mr. Chandra Shekhar Goit** from Nepal was awarded his Ph.D. degree under the guidance of Associate Prof. M. Saitoh.

**Mr. De Silva Petthayaddehi Kasun Chirantha** from Sri Lanka was awarded his Ph.D. degree under the guidance of Prof. N. Tanaka.

**Ms. Ei Ei Mon** from Myanmar was awarded her Ph.D. degree under the guidance of Prof. K. Kawamoto.

**Mr. Wael Elham Mohamed Sabry Mahmod** from Egypt was awarded his D.Eng. degree under the guidance of Prof. K. Watanabe.

**Mr. Dang Viet Duc** from Vietnam was awarded his Ph.D. degree under the guidance of Prof. Y. Okui.

**Mr. Mohammad Najmol Haque** from Bangladesh was awarded his M.Eng. degree under the guidance of Prof. H. Mutsuyoshi.

**Ms. Sabai Oo** from Myanmar was awarded her M.Eng. degree under the guidance of Prof. K. Watanabe.

**Mr. Mohammad Rajib** from Bangladesh was awarded his M.Eng. degree under the guidance of Associate Prof. C. T. Oguchi.

### March 2014

**Mr. Pham Viet Hung** from Vietnam was awarded his Ph.D. degree under the guidance of Prof. H. Yamaguchi.

**Mr. Abdul Rahimi Bin Abdul Rahman** from Malaysia was awarded his M.Eng. degree under the guidance of Prof. H. Kubota.

**Ms. Nguyen Thi Hai Duong** from Vietnam was awarded her M.Eng. degree under the guidance of Associate Prof. C. T. Oguchi.

**Ms. Hasina Iasmin** from Bangladesh was awarded her M.Eng. degree under the guidance of Prof. H. Kubota.

**Mr. Asif Arshid** from Pakistan was awarded his M.Eng. degree under the guidance of Prof. K. Iwashita and Assistant Prof. H. Taniyama.

**Mr. Chandana Nawarathna** from Sri Lanka was awarded his M.Eng. degree under the guidance of Prof. H. Mutsuyoshi.

**Mr. Kamal Kumar Adhikari** from Nepal was awarded his M.Eng. degree under the guidance of Prof. H. Kubota.

**Mr. Syed Kamran Hussain Shah** from Pakistan was awarded his M.Eng. degree under the guidance of Assistant Prof. S. Tachibana.

**Ms. Logagowry Karunananthasivam** from Sri Lanka was awarded her M.Eng. degree under the guidance of Prof. K. Suzuki.

**Mr. Mahadev Thapa** from Nepal was awarded his M.Eng. degree under the guidance of Associate Prof. S. Asamoto.

**Ms. Margarita Pelango Dizon** from Philippines was awarded her M.Eng. degree under the guidance of Prof. H. Kawakami.

**Mr. Md. Shafquat Hasan** from Bangladesh was awarded his M.Eng. degree under the guidance of Prof. Y. Okui.

**Mr. Naba Raj Shrestha** from Nepal was awarded his M.Eng. degree under the guidance of Associate Prof. M. Saitoh.

**Ms. W. N. Kumuduni Dharmarathne** from Sri Lanka was awarded her M.Eng. degree under the guidance of Prof. K. Kawamoto.

**Ms. Sushmita Hossain** from Bangladesh was awarded her M.Eng. degree under the guidance of Associate Prof. C. T. Oguchi.

**Mr. Pham Thanh Tung** from Vietnam was awarded his M.Eng. degree under the guidance of Associate Prof. M. Saitoh.

**Mr. G. G. T. Chandrathilake** from Sri Lanka was awarded his M.Eng. degree under the guidance of Assistant Prof. J. Yagisawa.

## Welcome New Students

### October 2013



**Choudhury Md. Shahnewaz Islam**  
Bangladesh, Doctor



**Mustafa Samim**  
India, Doctor



**Qazi Asif Nawaz**  
Pakistan, Doctor



**Rajib Mohammad**  
Bangladesh, Doctor



**Rangga Adiprima Sudisman**  
Indonesia, Doctor



**Rashid Hafiz M. Awais**  
Pakistan, Doctor



**Udagedara Dashan Tharanga**  
Sri Lanka, Doctor



**Aung Aung Soe**  
Myanmar, Master



**Md. Shajib Ullah**  
Bangladesh, Master



**Nepal Sandhya**  
Nepal, Master

### April 2014



**Iasmin Hasina**  
Bangladesh, Doctor



**Peng Zhang**  
China, Master



**Abdur Rahman**  
Bangladesh, Master



**Ashish Shrestha**  
Nepal, Master



**Chavin Nilanga Naotunna**  
Sri Lanka, Master



**Dileepa C. Hettiarachchi**  
Sri Lanka, Master



**Giang Truong Dang**  
Vietnam, Master



**Jayruel Rojas Delabajan**  
Philippines, Master



**Kunj Anand Vaidya**  
Nepal, Master



**Mahmudur Rahman**  
Bangladesh, Master



**Moniruzzaman Md.**  
Bangladesh, Master



**Muhammad Waqas**  
Pakistan, Master



**Sabin Singh**  
Nepal, Master



**Saqib Habib**  
Pakistan, Master

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## News

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### Faculty Promotion

Prof. Hiroki Yamaguchi was appointed as the President of Saitama University in April 2014. Congratulations on his new role of the university president.

### New Appointments

Dr. Yao Luan was appointed as an assistant professor of Structural Material Eng. Laboratory in October 2013. His research interest is concrete engineering.

Dr. Han Soo Lee was appointed as an associate professor of Environmental and Hydraulic Eng. Laboratory in April 2014. His research interest is coastal hazards and disaster mitigation.

Dr. Takeshi Saito was appointed as an assistant professor of Strategic Research and Development Division in April 2014. His research fields are hydrogeochemistry and geo-environmental engineering.

### Faculty on Move

Prof. Kunio Watanabe retired from Saitama University in March 2014 and became an emeritus professor. He is currently working as a visiting professor at Saitama University.

Dr. Shoichiro Hamamoto resigned from Saitama University in September 2013. He is currently working for University of Tokyo.

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## Condolences

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Prof. Kazuyoshi Iwashita passed away on September 20, 2013. His research field was mechanics of granular materials. We would like to express our sincerest condolences on his death.

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## Awards

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Prof. Hiroshi Mutsuyoshi was elected as an ACI (American Concrete Institute) Fellow at the ACI spring convention on March 23, 2014 in Reno, Nevada, USA.

Prof. Jiro Kuwano was awarded the Distinguished Service Medal of the Japanese Geotechnical Society in June 2014.

Assoc. Prof. Shingo Asamoto was awarded the Excellent Presentation Award in the 67th Japan Cement Association Annual Convention in 2013.

Assist. Prof. Ji Dang was awarded Excellent Paper Award in the 2nd International Symposium on Earthquake Engineering, 2013 for the paper "Nonlinear numerical hysteresis model for bi-directionally loaded elastomeric isolation bearings".

Dr. Rama Mohan Pokhrel (Doctoral graduate in 2011), who is a JSPS post-doctoral research fellow at Univ. of Tokyo, was awarded Young Scientist

Award 2013 by Nepal Academy of Science and Technology for his new research contribution in the field of earthquake liquefaction and its zoning.

Mr. Mohammad Rajib was awarded the 2013 Student Outstanding Presentation Award (Human Geosciences) in Japan Geoscience Union Meeting in May 2013 for the paper "Variations in adsorption coefficient of <sup>133</sup>Cs and <sup>87</sup>Sr caused by oxidation of pumice tuff".

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## Message from Alumni

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I am really pleased to share my experiences in Japan through this message. I obtained M.Eng. degree in 2009 and Ph.D. degree in 2013 under the International Graduate Program with financial supports from the ADB-JSP scholarship and Japanese Government scholarship program. I got a good opportunity to pursue my research at Soil Mechanics Lab for five years, majoring in the fields of geotechnical and geo-environmental engineering, which highly broadened my prior knowledge.



During my stay in Japan, I could experience not only advanced learning programs, but also various social and cultural activities which are invaluable in my professional life. As one of my academic experiences, I received persistent guidance from professors and was able to have mutual discussions with them, which were advantageous to the success of my research. I greatly enjoyed my student life at Saitama University by participating in different traditional Japanese ceremonies like the Japanese tea ceremony and many student activities, particularly the Mutsume Festival.

Currently, I am working as an environmental expert for infrastructure projects in Myanmar. I do believe that I will utilize my enhanced academic knowledge for infrastructure development in our country. I hope that many international students will join this program, take advantage of opportunities like learning Japanese language, improve their ability and contribute their gained knowledge to the development of their countries in the future.

Finally, I would like to express my appreciation to the Japanese Government for supporting international students who can become good leaders in a variety of career fields in their home country.

With all best wishes and warmest regards,

**Ei Ei Mon**

Yangon, Myanmar

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## Message from the Foreign Student Office

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How do you like your job? We hope everything is fine with you. We are happy to welcome 14 new students into our graduate program in April 2014.

We have great news. Prof. Yamaguchi has become the President of Saitama University. Maybe you will be proud that you are one of his students. We also would like to introduce a new reliable FSO member, Dr. Luan. He is helping us with FSO matters and we are really glad to work with him.

We are pleased to inform you that we have issued our 2014 alumni directory, which is the fifth edition, including our graduates' data from September 1995 to March 2014. If you submitted your tracer

form, your information is updated. Thank you for your cooperation in sending us your tracer form.

Please feel free to contact us. We can't wait to hear what you have been doing lately.

Best wishes for your future.

### The Foreign Student Office (FSO)

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