

Kil-Wan Ko, Ph.D.

Postdoctoral Scholar, Department of Civil & Environmental Engineering, University of Southern California
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OBJECTIVE

A postdoctoral researcher with 8+ years of experience in geotechnical engineering and earthquake engineering seeking a geotechnical relevant position. Skillful at soil liquefaction evaluation and dynamic soil-structure interaction investigation. Has extensive knowledge in conducting earthquake-related analyses and performing field tasks such as test boring logging and data evaluation through experimental modeling and geotechnical software (FLAC, DEEPSOIL) utilization.

CAREER SUMMARY

Kil-Wan Ko is currently a postdoctoral researcher in the Department of Civil and Environmental Engineering at the University of Southern California and concurrently a visiting scholar at the University of California, Berkeley. He completed his M.S. (2017) and Ph.D. (2020) programs at KAIST. His interests, excellent skills, and experience in areas of geotechnical earthquake engineering and soil dynamics were mainly shaped by his Ph.D. and postdoc research experiences. His research primarily focuses on dynamic soil-foundation-structure interaction (SFSI), rocking shallow foundations, and soil liquefaction. His multidisciplinary experiences cover a broad array of fields and geotechnical skill sets, including geotechnical earthquake engineering, foundation engineering, and structural dynamics using experimental (geo-centrifuge), numerical, and analytical modeling. Based on the insights gleaned from his Ph.D. and postdoc research, he aspires to further assess hazards and risks faced by urban areas against earthquakes; specifically, (1) structure-soil-structure interaction and (2) soil liquefaction as well as its impact on the seismic responses of structures.

EDUCATION

Ph.D., Civil and Environmental Engineering February 2020

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

- Dissertation: *Investigation of foundation rocking behavior considering nonlinearity of soil-foundation-structure interaction during earthquake*
- Advisor: Prof. Dong-Soo Kim

M.S., Civil and Environmental Engineering February 2017

KAIST, Daejeon, Republic of Korea

- Thesis: *Investigation of rocking mechanism for embedded shallow foundation via centrifuge test*
- Advisor: Prof. Dong-Soo Kim
- GPA: 3.93/4.3
Relevant courses: Earthquake engineering, Geotechnical Earthquake Engineering and Design, Advanced Soil Dynamics, Advanced Structural Dynamics, Analysis of Soil Behavior, Advanced Soil Mechanics

B.S., Civil and Environmental Engineering February 2015

KAIST, Daejeon, Republic of Korea

- GPA: 3.48/4.3
Relevant courses: Foundation Engineering, Vibration Engineering, Soil Mechanics and Laboratory I & II, Structural Mechanics I & II

ACADEMIC EXPERIENCE**Postdoctoral Scholar – Research Associate**

October 2022 – Present

Department of Civil & Environmental Engineering, University of Southern California (USC)

- Advisor: Prof. Chukwuebuka C. Nweke
- Research
 - (1) Energy-based soil liquefaction evaluation using earthquake case history data
 - (2) Identification of timing of liquefaction triggering

Visiting Scholar

November 2021 – Present

Department of Civil & Environmental Engineering, University of California, Berkeley (UC Berkeley)

- Advisor: Prof. Robert E. Kayen
- Research
 - (1) Energy-based soil liquefaction evaluation using earthquake case history data
 - (2) Identification of timing of liquefaction triggering
 - (3) Analytical modeling for dynamic soil-foundation-structure interaction

Postdoctoral Researcher

September 2021 – August 2022

KOCED Geotechnical Centrifuge Testing Center at KAIST

- Advisors: Prof. Gye-Chun Cho
- Research
 - (1) Numerical modeling for dynamic soil-foundation-structure interaction

Postdoctoral Researcher

March 2020 – August 2021

Department of Civil & Environmental Engineering, KAIST

- Advisors: Prof. Dong-Soo Kim and Prof. Gye-Chun Cho
- Research
 - (1) Dynamic centrifuge modeling of soil-structure systems
- Technical Responsibilities
 - (1) Operation of earthquake simulator for dynamic centrifuge tests
 - (2) Managing and consulting dynamic centrifuge modeling

Graduate Research Intern

July 2015 – August 2015

Earthquake Research Center, Korea Institute of Geoscience and Mineral Resources (KIGAM)

- Research
 - (1) Validation of numerical modeling (FLAC2D) with dynamic geo-centrifuge tests for site response analysis

TEACHING AND MENTORING EXPERIENCE**Graduate Teaching Assistant**

September 2016 – June 2019

KAIST, Daejeon, Republic of Korea

- Undergraduate:
 - (1) CE333 Soil Dynamics (Fall 2016)
- Graduate:
 - (1) CE633 Advanced Soil Dynamics (Spring 2017)
 - (2) CE636 Geotechnical Earthquake Engineering (Spring 2018 and Spring 2019)

Mentoring

- Undergraduate student:

- (1) Anna Babchanik: Frequency Characteristics and Timing of Soil Liquefaction Triggering Using Stockwell Transform (Summer Undergraduate Research Experience (SURE), USC, July 2023)
 - (2) Haein Lee: Dynamic soil-structure interaction using geo-centrifuge tests (Undergraduate thesis research, KAIST, March 2017 – June 2017)
- Graduate students:
 - (1) Dong-Hyeong Choi: Soil-foundation-structure interaction and permanent settlement due to soil liquefaction (KAIST, September 2019 – Present)
 - (2) Yoon-Ah Kim: Investigation of dynamic behavior of slopes during earthquake using centrifuge tests (M.S. thesis research, KAIST, March 2019 – February 2021)
 - (3) Yeon-Jun Kim: Evaluation of liquefaction triggering for the Pohang area based on SPT and CPT tests (M.S. thesis research, KAIST, March 2019 – February 2021)
 - (4) Yeon-Sam Kim: Investigation of dynamic behavior mechanism of gravity-type quay wall under saturated condition (M.S. thesis research, KAIST, September 2018 – June 2020)

RESEARCH INTERESTS

Main Research Directions: (1) dynamic soil-foundation-structure interaction, (2) soil liquefaction, (3) landslide and slope stability, and (4) investigation of offshore foundations in tripod foundations.

Methodology: experimental studies using geo-centrifuge modeling, investigation of earthquake case history data, analytical modeling for understanding fundamental mechanisms of earthquake-related problems, and numerical modeling using finite difference method (FDM).

Geotechnical Earthquake Engineering

- Dynamic soil-structure interaction (SSI) or soil-foundation-structure interaction (SFSI)
 - (1) *Shallow foundation*
 - Experimental and numerical studies (FLAC 3D) on the foundation rocking behavior to reduce the seismic demand of the structure from strong earthquakes (rocking foundation)
 - Analytical and experimental studies on inertial interaction effects of SFSI on dynamic behavior of structure-foundation system
 - Correlation between ground motion intensity measures and seismic performance of rocking foundations
 - (2) *Disconnected piled raft (DPR) & Unattached pile*
 - Dynamic bending moment and SFSI effects of DPR during earthquakes
 - Seismic response of structure on unattached pile
 - Improved design for shallow foundation using short piles
- Soil liquefaction during earthquakes
 - (1) *Liquefaction Experiment and Analysis Projects (LEAP)*
 - 2017: Centrifuge modeling for soil liquefaction and lateral spreading
 - 2019: Validation of generalized scaling law
 - (2) *Energy-based soil liquefaction evaluation*
 - Prediction of excess pore water pressure in liquefiable soil using centrifuge test data and case histories
 - Arias intensity-based soil liquefaction evaluation
 - Timing of liquefaction using frequency characteristics of soil

- (3) *Seismic design code revision for soil liquefaction after 2017 Pohang Earthquake in Korea*
 - 2017 Pohang earthquake in Korea: Evaluation of liquefaction triggering for the Pohang Area based on SPT and CPT tests
 - Centrifuge modeling for simulating liquefaction of Pohang sand layer during an earthquake
- Landslide and slope stability
 - (1) *Amplification characteristics in a slope during earthquakes using centrifuge tests*

Investigation of Offshore Foundation

- Tripod
 - (1) *Simplified estimation of rotational stiffness of tripod foundation for offshore wind turbine under cyclic loadings*
 - (2) *Cyclic behavior of tripod suction bucket foundation system supporting offshore wind turbine*

PUBLICATIONS

Thesis

- Ph.D. Thesis (2020). Investigation of foundation rocking behavior considering nonlinearity of soil-foundation-structure interaction during earthquake. Department of Civil and Environmental Engineering, KAIST, Republic of Korea
- M.Sc. Thesis (2017). Investigation of rocking mechanism for embedded shallow foundation via centrifuge test. Department of Civil and Environmental Engineering, KAIST, Republic of Korea

Books

- Kim, D. S., **Ko, K. W.**, Park, H. J., Ha, J. G., Manandhar, S. (2019). "Dynamic centrifuge tests for soil-foundation-structure interaction problems: disconnected piled raft (DPR)" in *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*, eds. Silvestri & Moraci, Associazione Geotecnica Italiana, Rome, Italy, ISBN 978-0-367-14328-2, ppl 105-120.

Press Release

- **Ko, K. W.** (2022). "How soil affects structural response during earthquakes?" in *Research Webzine, KAIST Breakthroughs*, Vol. 18, Spring 2022.
<https://breakthroughs.kaist.ac.kr/newsletter/2022/18/default.htm>

Refereed Journal Publications

International Journal Papers

The asterisk (*) indicates the corresponding author

1. Lee, J.S. and **Ko, K. W.*** (In preparation). "Behavior of Liquefied Soil Layer Observed Through Dynamic Centrifuge Test and Numerical Analysis."
2. **Ko, K. W.**, Kayen, R., and Nweke, C. (In preparation). "Estimation of Timing of Liquefaction using Spectral Energy Ratio." *Journal of Geotechnical and Geoenvironmental Engineering*

3. **Ko, K. W.**, Lee, S. B., Oh, T. S., Kim, N. R., and Kim, J. H. * (Under review). "Performance evaluation of Sand Pluviation Methods Considering Spatial Variation in Model Box." *KSCE Journal of Civil Engineering*
4. Choi, D. H., Kwon, T. H., and **Ko, K. W.*** (Under review). "Centrifuge modeling of soil liquefaction of a Pohang sand layer during the 2017 Pohang earthquake." *KSCE Journal of Civil Engineering*
5. **Ko, K. W.***, Kayen, R., Kokusho, T., Ilgac M., Nozu, A., and Nweke, C. (Under review). "Energy-Based Liquefaction Evaluation: A Case Study at the Port of Kushiro, Hokkaido, 2003 Tokachi-Oki Earthquake." *Journal of Geotechnical and Geoenvironmental Engineering*
6. **Ko, K. W.** and Kayen, R.* (Under review). "Energy-Based and Strain-Based Methods for Estimation of Pore Water Pressure within Liquefied Soil Layers." *Journal of Geotechnical and Geoenvironmental Engineering*
7. **Ko, K. W.**, Ha, J. G., Lee, J. S., and Cho, G. C.* (2023). "Sensitivity Analysis of Mass Ratio Effect on Settlement and Seismic Response of Shallow Foundation Using Numerical Simulation." *Geomechanics and Engineering*, Vol. 34, No. 6, pp. 649-664, DOI: 10.12989/gae.2023.34.6.649 (2023/09).
8. **Ko, K. W.** and Kayen, R.* (2023). "Effect of Structure-to-Foundation Mass Ratio in Analytical Modeling of Soil-Foundation-Structure Interaction During Earthquakes." *Soil Dynamics and Earthquake Engineering*, Vol. 172, pp. 108050, DOI: 10.1016/j.soildyn.2023.108050 (2023/09)
9. Kim, Y.A., Lee, H.I., **Ko, K. W.***, and Kwon, T.H. (2022). "Experimental Observation and Analytical Validation of Seismic Amplification near a Slope During Earthquakes." *Soil Dynamics and Earthquake Engineering*, Vol. 163, pp. 107502, DOI: 10.1016/j.soildyn.2022.107502 (2022/12)
10. Lee, J.S.* , Park, C.S., Kwon, K.Y., Song, J.H., Kim, K.J., Kim, N.S., and **Ko, K. W.** (2022). "Numerical back-analysis of caisson quay walls in the Yeong-il bay port during the 2017 Pohang earthquake." *KSCE Journal of Civil Engineering*, Vol. 26, No. 10, pp. 4290-4301, DOI: 10.1007/s12205-022-0950-3 (2022/10)
11. Kim, Y. S., Lee, M. G., Cho, G. C., and **Ko, K. W.*** (2022). "Inertial Behavior of Gravity-Type Quay Wall: A Case Study Using Dynamic Centrifuge Test." *Soil Dynamics and Earthquake Engineering*, Vol. 155, pp. 107196, DOI: 10.1016/j.soildyn.2022.107196 (2022/04)
12. **Ko, K. W.**, Ha, J. G.* , and Kim, D. S. (2022). "Analytical Evaluation and Experimental Validation on Dynamic Rocking Behavior for Shallow Foundation Considering Structural Response." *Earthquake Engineering and Engineering Vibration*, Vol. 21, No.1, pp. 37-51, DOI: 10.1007/s11803-022-2075-6 (2022/01)
13. **Ko, K. W.** and Ha, J. G.* (2021). "Ground Motion Intensity Measure to Evaluate Seismic Performance of Rocking Foundation System." *Earthquake and Structures*, Vol. 21, No.6, pp. 563-576, DOI: 10.12989/eas.2021.21.6.563 (2021/12)
14. Jeong, Y. H., Kim, J. H., **Ko, K. W.**, and Park, H. J.* (2021). "Simplified Estimation of Rotational Stiffness of Tripod Foundation for Offshore Wind Turbine under Cyclic Loadings." *Applied Ocean Research*, Vol. 112, No. 7, pp. 102697, DOI: 10.1016/j.apor.2021.102697 (2021/07)

15. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S.* (2021). "Investigation of Period-Lengthening Ratio for Single-Degree-of-Freedom Structures Using Dynamic Centrifuge Test." *Journal of Earthquake Engineering*, Vol. 25, No. 7, pp. 1358-1380, DOI: 10.1080/13632469.2019.1576557 (2021/06)
16. Jeong, Y. H., **Ko, K. W.**, Kim, D. S., and Kim, J. H.* (2021). "Studies on Cyclic Behavior of Tripod Suction Bucket Foundation System supporting Offshore Wind Turbine using Centrifuge Model Tests." *Wind Energy*, Vol. 24, No. 5, pp. 515-529, DOI: 10.1002/we.2586 (2021/05)
17. Manandhar, S., Kim, S. N., Ha, J. G., **Ko, K. W.**, Lee, M. G., and Kim, D. S.* (2021). "Liquefaction evaluation using frequency characteristics of acceleration records in KAIST centrifuge tests for LEAP." *Soil Dynamics and Earthquake Engineering*, Vol. 140, pp. 106332, DOI: 10.1016/j.soildyn.2020.106332 (2021/01)
18. Kim, H. U., Ha, J. G., **Ko, K. W.**, and Kim, D. S.* (2020). "Optimization of two soil-structure interaction parameters using dynamic centrifuge tests and an analytical approach." *Sustainability*, Vol. 12, No. 17, pp. 7113, DOI: 10.3390/su12177113 (2020/09)
19. Park, H. J., **Ko, K. W.***, Song, Y. H., Song, M. J., Jin, S., Ha, J. G., and Kim, D. S.* (2020). "Centrifuge modeling of disconnected piled raft using vertical pushover tests." *Acta Geotechnica*, Vol. 15, No. 9, pp. 2637-2648, DOI: 10.1007/s11440-020-00928-6 (2020/09)
20. **Ko, K. W.**, Ha, J. G., and Kim, D. S.* (2020). "Structural Inertial Interaction Effects on Foundation Behavior." *Soil Dynamics and Earthquake Engineering*, Vol. 135, pp. 106238, DOI: 10.1016/j.soildyn.2020.106238 (2020/09)
21. **Ko, K. W.**, Park, H. J.*, Ha, J. G., Jin, S., Song, Y. H., Song, M. J., and Kim, D. S.* (2019). "Evaluation of Dynamic Bending Moment of Disconnected Piled Raft via Centrifuge Tests." *Canadian Geotechnical Journal*, Vol. 56, pp. 1917-1928, DOI: 10.1139/cgj-2018-0248 (2019/12)
22. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S.* (2019). "Centrifuge Modeling of Improved Design for Rocking Foundation Using Short Piles." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 145, No. 8, pp. 04019031, DOI: 10.1061/(ASCE)GT.1943-5606.0002064 (2019/08)
23. Ha, J. G., **Ko, K. W.**, Jo, S. B., Park, H. J., and Kim, D. S.* (2019). "Investigation of seismic performance of unconnected pile foundations using dynamic centrifuge tests." *Bulletin of Earthquake Engineering*, Vol. 17, No. 5, pp. 2433-2458, DOI: 10.1007/s10518-018-00530-y (2019/05)
24. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S.* (2018). "Comparison between cyclic and dynamic rocking behavior for embedded shallow foundation using centrifuge tests." *Bulletin of Earthquake Engineering*, Vol. 16, No. 11, pp. 5171-5193, DOI: 10.1007/s10518-018-0409-6 (2018/11)
25. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S.* (2018). "Soil-rounding effect on embedded rocking foundation via horizontal slow cyclic tests." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 144, No. 3, 04018004, DOI: 10.1061/(ASCE)GT.1943-5606.0001848 (2018/03)

1. Kim, Y. A., Lee, H. I., **Ko, K. W.**, and Kim, D. S.* (2020). "Validation of Equivalent Shear Beam Container Using Dynamic Centrifuge Tests." *Journal of the Korean Geotechnical Society*, Vol. 36, No. 11, pp. 61-70
2. Kim, Y. J., **Ko, K. W.**, Kim, B. M., Park, D. H., Kim, K. S., Han, J. T., and Kim, D. S.* (2020). "Evaluation of Liquefaction Triggering for the Pohang Area Based on SPT and CPT Tests." *Journal of the Korean Geotechnical Society*, Vol. 36, No. 10, pp. 57-71
3. Kim, Y. J., **Ko, K. W.**, Manandhar, S., Kim, B., and Kim, D. S.* (2020). "Overview on Standards for Liquefaction Triggering Evaluation using the Simplified Method." *Journal of the Earthquake Engineering Society of Korea*, Vol. 24, No. 5, pp. 197-209
4. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S.* (2016). "Evaluation of Rocking Mechanism for Embedded Shallow Foundation via Horizontal Slow Cyclic Tests." *Journal of the Korean Geotechnical Society*, Vol. 32, No. 8, pp. 47-59

Peer Reviewed Conference Proceedings

International Conference Proceedings

1. **Ko, K. W.** (2022). "Structural Inertia Impacts on System Deformation under Strong Earthquakes: Case Studies using Dynamic Centrifuge Tests." *10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022)*, Daejeon, Korea, 2022. 09. (Bright Spark Lecture Award)
2. Park, H.J. and **Ko, K. W.** (2022). "Advantages of the disconnected piled raft on vertical and seismic load transfer." *10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022)*, Daejeon, Korea, 2022. 09. (Keynote Lecture)
3. **Ko, K. W.**, Ha, J. G., and Cho, G. C. (2022). "Prediction of Maximum Rotation of Rocking Foundation Considering Structural Response During Strong Earthquakes." *10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022)*, Daejeon, Korea, 2022. 09.
4. Kim, Y. A., **Ko, K. W.**, Lee, H. I., and Kwon, T. H. (2022). "Assessment of Intensity Measures for Seismic Slope Displacement Using Centrifuge Tests." *10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022)*, Daejeon, Korea, 2022. 09.
5. Choi, D. H., **Ko, K. W.**, and Kwon, T. H. (2022). "Centrifuge Modelling for Dynamic Behaviour of Shallow Foundation on Liquefied Soil." *10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022)*, Daejeon, Korea, 2022. 09.
6. **Ko, K. W.**, Choi, D. H., Kim, Y. J., Kwon, T. H., and Cho, G. C. (2021). "Centrifuge modeling of soil liquefaction of a Pohang sand layer during the 2017 Pohang earthquake." *3rd Asian Conference on Physical Modelling in Geotechnics (Asiafuge-2021)*, Singapore, 2021. 11.
7. Kim, Y. S., **Ko, K. W.**, and Kim, D. S. (2019). "Investigation of the dynamic behavior of gravity-type quay wall under saturated condition." *4th European Physical Modelling Conference in Geotechnics*, Luleå, Sweden, 2020. 09.
8. Kim, Y. S., **Ko, K. W.**, and Kim, D. S. (2019). "Dynamic centrifuge testing to investigate the dynamic behavior of gravity-type quay wall." *The 32nd KKHTCNN symposium on civil engineering*, Daejeon, Korea, 2019. 10.

9. Kim, D. S., **Ko, K. W.**, Park, H. J., Ha, J. G., and Manandhar, S. (2019). "Dynamic centrifuge tests for soil-foundation-structure interaction problems: disconnected piled raft (DPR)." *7th International Conference on Earthquake Geotechnical Engineering*, Roma, Italy, 2019. 06. 17-20. (Keynote Lecture)
 - **Ko, K. W.** (Second author) presented Keynote Lecture in 7th ICEGE instead of Kim, D.S.
10. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2018). "Evaluation of period-lengthening ratio (PLR) of single-degree-of-freedom structure via dynamic centrifuge tests." *9th International Conference on Physical Modelling in Geotechnics*, London, United Kingdom, 2018. 07.
11. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2018). "Investigation of Rocking Mechanism of Shallow foundation via Centrifuge Tests." *5th Geotechnical Earthquake Engineering and Soil Dynamics*, Texas at Austin, United States of America, 2018. 06.
12. Kim, D. S., and **Ko, K. W.** (2018). "Centrifuge modeling of disconnected piled raft (DPR): Vertical load-transfer and seismic behavior." *7th Technical Conference in Eastern Asia on Geo-natural Disasters*, Chengdu, China, 2018. 05. (Invited Talk)
13. **Ko, K. W.**, Ha, J. G., Park, H. J., Lee, H., and Kim, D. S. (2017). "Evaluation of dynamic bending moment of disconnected pile foundation via dynamic centrifuge tests." *The 30th KKHTCNN Symposium on Civil engineering*, Taipei, Taiwan, 2017. 11.
14. Ha, J. G., Park, H. J., Kim, D. S., Lee, M. G., and **Ko, K. W.** (2017). "Evaluation of seismic behavior of disconnected pile foundation via dynamic centrifuge tests." *6th International Young Geotechnical Engineers' Conference*, Seoul, Korea, 2017. 09.
15. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2017). "Comparison of rocking behavior between conventional and new-type of shallow foundations via centrifuge tests." *3rd International Conference on Performance-based Design in Earthquake Geotechnical Engineering*, Vancouver, Canada, 2017. 07.
16. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2016). "Soil rounding effect of rocking foundation via centrifuge tests." *The 29th KKHTCNN Symposium on Civil engineering*, Hongkong, China, 2016. 12.

Conference Proceedings in Korean

1. **Ko, K. W.** and Lee, J. S. (2021). "Investigation of Liquefied Soil Layer Using Dynamic Centrifuge Test and Numerical Analysis." *2021 Fall Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2021. 10.
2. Kim, Y. A., **Ko, K. W.**, Kim, D. S., Kwon, T. H., and Lee, H. I. (2021). "Investigation of Amplification Characteristics in a Slope During Earthquakes Using Centrifuge Tests." *2021 Spring Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2021. 03.
3. **Ko, K. W.**, Park, H. J., Ha, J. G., Jin, S., Song, Y. H., and Song, M. J. (2021). "Evaluation of Dynamic Bending Moment of Disconnected Piled Raft Using Centrifuge Tests." *2021 Spring Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2021. 03.
4. **Ko, K. W.**, Choi, D. H., Kim, Y. J., and Kim, D. S. (2020). "Centrifuge Modeling for Simulating Liquefaction of Pohang Sand Layer During Earthquake." *2020 Fall Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2020. 09.
5. Kim, Y. A., **Ko, K. W.**, Lee, H. I., and Kim, D. S. (2020). "Evaluation of Dynamic Behavior of Slope During Earthquakes Using Centrifuge Model Tests." *2020 Fall Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2020. 09.

6. Kim, Y. S., **Ko, K. W.**, and Kim, D. S. (2019). "Dynamic centrifuge testing to investigate the dynamic behavior of gravity-type quay wall." *2019 Fall Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2019. 09.
7. Ha, J. G., **Ko, K. W.**, and Kim, D. S. (2019). "Experimental Investigation of Soil-Structure Interaction Effect on Seismic Structural Response using Centrifuge Test." *Transactions of the Korean Nuclear Society Spring Meeting*, Jeju, Korea, 2019. 05.
8. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2018). "Evaluation Rocking Behavior of Shallow Foundation using Short Piles." *2018 Fall Earthquake Engineering Society of Korea Conference*, Kangwon, Korea, 2018. 09.
9. Ha, J. G., **Ko, K. W.**, Park, H. J., and Kim, D. S. (2017). "Evaluation of Rocking Behavior for Embedded Shallow Foundation using Dynamic Centrifuge Tests." *2017 Spring Earthquake Engineering Society of Korea Conference*, Seoul, Korea, 2017. 03.
10. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2016). "Evaluation Rocking Behavior of Various Type Foundations via Horizontal Slow Cyclic Test." *KSCE 2016 Convention*, Jeju, Korea, 2016. 10.
11. **Ko, K. W.**, Ha, J. G., Park, H. J., and Kim, D. S. (2016). "Evaluation of Rocking and Horizontal Behaviors for shallow foundation via Centrifuge Test." *2016 Spring Korean Geotechnical Engineering Society Conference*, Seoul, Korea, 2016. 03.

Lectures and Invited Talks

Lectures

Bright Spark Lecture

September 21, 2022

10th International Conference on Physical Modelling in Geotechnics (ICPMG-2022), Daejeon, Republic of Korea

- Title: Structural Inertia Impacts on System Deformation under Strong Earthquakes: Case Studies using Dynamic Centrifuge Tests

Keynote Lecture

June 19, 2019

7th International Conference on Earthquake Geotechnical Engineering (ICEGE), Roma, Italy

- Title: Dynamic Centrifuge Tests for Soil-Foundation-Structure Interaction Problems: Disconnected Piled Raft (DPR)
- **Ko, K. W.** (Second author) presented Keynote Lecture in 7th ICEGE instead of Kim, D.S.

Invited Talks

UC Berkeley Geosystem Engineering, Wednesday Seminar
University of California, Berkeley, USA

April 26, 2023

- Title: Dynamic Soil-Foundation-Structure Interaction: Rocking Shallow Foundation and Its Impact on Structural and Foundation Responses

2022 UC Berkeley Geotechnical Engineering 6th Annual Research Symposium
University of California, Berkeley, USA

November 18, 2022

- Title: Energy-Based Method for Prediction of Excess Pore Water Pressure in Liquefiable Soil

Granular Materials Lab
University of California, Davis, USA

July 12, 2022

- Title: Effect of Mass Ratio for a Shallow Foundation-Structure System on Dynamic Soil-Foundation-Structure Interaction: Analytical, Numerical Models and Centrifuge Validation

3rd Asian Conference on Physical Modelling in Geotechnics (Asiafuge) November 17, 2021
National University of Singapore, Singapore

- Title: Virtual Tour of the Geotechnical Centrifuge Facilities at KAIST

Seminar in Department of Urban & Environmental Engineering August 12, 2021
Ulsan National Institute of Science and Technology (UNIST), Republic of Korea

- Title: Foundation Rocking Behavior Considering Nonlinearity of Soil-Foundation-Structure Interaction During Earthquakes: Input, Output, and System.

Seminar at Seismic Safety Research Center April 09, 2021
Korea Institute of Civil Engineering and Building Technology (KICT), Republic of Korea

- Title: Foundation Rocking Behavior Considering Nonlinearity of Soil-Foundation-Structure Interaction During Earthquakes: Input, Output, and System.

Geo-KAIST, Geotechnical Society of KAIST April 01, 2021
KAIST, Republic of Korea

- Title: Foundation Rocking Behavior Considering Nonlinearity of Soil-Foundation-Structure Interaction During Earthquakes: Input, Output, and System.

Languages

English (Intermediate Proficiency) ●●●●○

Korean (Native) ●●●●●

Technical Skills

- Engineering Software: FLAC 3D 7.0, FLAC 7.0, OpenSees, Strata, DEEPSOIL, and Prism
- Utilities: MATLAB, Python, Microsoft Office (Word, Excel, PowerPoint), AutoCAD, and SketchUp
- Experimental Skills: Dynamic centrifuge modeling and Operation of earthquake simulator

Honors and Awards

Awards

- Bright Spark Lecture Award, International Society for Soil Mechanics and Geotechnical Engineering, 2022. 09.
- Best Presentation Award: The 30th KKHTCNN Symposium on Civil Engineering, 2017. 11.
- Best Paper Award: 2019 Fall Korean Geotechnical Engineering Conference, 2019. 10.
- Best Paper Award: 2021 Spring Korean Geotechnical Engineering Conference, 2021. 04.

Scholarship

- U-city Scholarship (Korea Ubiquitous City Association) – Ministry of Land, Infrastructure and Transport, 2017. 03. – 2020. 02. (Ph.D. Program)

- U-city Scholarship (Korea Ubiquitous City Association) – Ministry of Land, Infrastructure and Transport, 2015. 03. – 2017. 02. (M.S. Program).
- The Presidential Science Scholarship (Mathematics) – Korea Student Aid Foundation, 2010. 03. – 2015. 02. (B.S. Program)
* Extremely competitive scholarship in Republic of Korea, which is awarded only to 100 undergraduate students per year.

Activities

Academic Memberships

- Member, Korean Society of Geotechnical Engineers (KGS) March 2016 – Present
- Member, Earthquake Engineering Society of Korea (EESK) June 2021– Present
- Member, Korean Society of Civil Engineering (KSCE) June 2023– Present

Service Positions

- Member of Organizing Committee July 2018 – December 2021
10th International Conference on Physical Modelling in Geotechnics 2022 (ICPMG 2022)
- Member of Host Committee March 2018 – July 2018
10th International Conference on Physical Modelling in Geotechnics 2022 (ICPMG 2022)
- Member of Organizing Committee February 2017 – October 2017
19th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE 2017)

Journal and Conference Paper Reviews

Journal

Canadian Geotechnical Journal (2018), Geomechanics and Engineering (2022), Journal of the Korean Geotechnical Society (2021)

Conference

10th International Conference on Physical Modelling in Geotechnics 2022 (2022)

Research Projects

1. Development of advanced technology for underground safety risk assessment of urban ground subsidence and liquefaction, 412 x 1000 \$(USD), Korea Agency for Infrastructure Technology Advancement, 2019.04. – 2020.12.
2. Developing standard test procedures based on performance for technology and product verification in the construction field, 1250 x 1000 \$(USD), Korea Agency for Infrastructure Technology Advancement, 2018.01. – 2021.05.
3. Evaluation of static and dynamic behavior of disconnected piled raft (DPR) foundation, 100 x 1000 \$(USD), Hyundai Engineering & Construction, 2017.04. – 2017.11.
4. Liquefaction Experiment and Analysis Projects (LEAP), 2017.01. – 2020.12.
5. Development of Performance-Based Seismic Design Technologies for Advancement in Design Codes for Port Structures, 1326 x 1000 \$(USD), Korea Institute of Marine Science & Technology Promotion – Ministry of Oceans and Fisheries, 2016.04. – 2020.12.
6. Advancement of disaster prevention technology for infrastructure using geo-centrifuge test, 392 x 1000 \$(USD), National Research Foundation of Korea, 2015.11. – 2017.10.

7. Soil-foundation-structure interaction for performance-based design methodologies, National Research Foundation of Korea, 2014. 11. – 2019. 11.
8. Development of seismic design technology using yielding behavior of shallow foundation during earthquake, 400 x 1000 \$(USD), Korea Agency for Infrastructure Technology Advancement – Ministry of Land, Infrastructure and Transport, 2014.07. – 2016.07.
9. Development of cutting-edge technologies for the multi-faceted representation of design earthquake ground motions based on analyses of acceleration records, 399 x1000\$(USD), Ministry of Public Safety and Security, 2013.05. – 2016.04.

List of References

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