

Boo Hyun “Boo” Nam, Ph.D.

Assistant Professor
Department of Civil, Environmental, and Construction Engineering
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EDUCATION:

- **University of Texas at Austin (2005 to 2010 December)**
Ph.D. in Civil Engineering, Geotechnical Program
Supervisor: Kenneth H. Stokoe II
- **University of Texas at Austin (2003 to 2005)**
M.S.E. in Civil Engineering, Geotechnical Program
Supervisor: Kenneth H. Stokoe II
- **Kyunghee University, Korea (1996 to 2003, military service from 1997 to 1999)**
B.S. in Civil Engineering

EXPERIENCE:

- **Assistant Professor**, University of Central Florida (Aug 2011 to present)
- **Postdoctoral Research Fellow**, Center for Transportation Research, University of Texas at Austin (Dec 2010 to Aug 2011)
- **Graduate Research Assistant**, University of Texas at Austin (Aug 2004 to Dec 2010)

RESEARCH INTERESTS:

- Multi-function civil materials: nanotechnology-based asphalt/concrete materials.
- Municipal solid waste characterization and management.
- Sinkhole characterization and mitigation measures.
- Subsurface characterization of geotechnical and pavement systems.
- Wave propagation and its applications to urban construction (pile driving and soil compaction)
- Laboratory evaluation of material properties (geotechnical, pavement, and recycled materials) by static and dynamic methods.
- Pavement monitoring and evaluation, management, and preservation.

RESEARCH GRANTS:

- “Characterizing sinkhole hazards in Florida”, UCF In-House Research Grant, May 2013 – present, \$7,500.
- “Major Research Equipment - Multi-Purpose Testing System in Situ Characterization of the Mechanics of Advanced Structures and Materials”, PI, UCF In-House Research Grant, April 2013 to present, \$31,000.
- “Evaluating the Use of Waste-to-Energy Bottom Ash as Road Construction Materials,” PI, Florida Department of Transportation, October 2012 – to present, \$49,500.
- “Investigation of Reflective Cracking Mitigation Techniques,” PI, Florida Department of Transportation, July 2012 – to present, \$172,000.
- “Evaluating the Use of Reclaimed Concrete Aggregate in French Drains,” PI, Florida Department of Transportation, March 2012 – to present, \$100,000.

- “Evaluation of Vibration Limits and Mitigation Techniques for Urban Construction”, Co-PI (PI: Dr. Mehmet Bayraktar), Florida Department of Transportation, January 2011 – August 2013, \$150,000.
- “Application of Recycled Asphalt Shingle in HMA”, Co-PI, Hinkley Center for Solid and Hazardous Waste Management, August 2011 – July 2012, \$50,000.
- “Transition of RDD from a Screening Tool to an Evaluation Tool for Airfield Pavement Projects”, PI, TRB Airport Cooperative Research Program (ACRP) Graduate Research Grant, 2009 – 2010, \$10,000.
- Korea Science and Engineering Foundation, Graduate Study Abroad Award – 2003 to 2005, \$60,000.

HONORS AND AWARDS:

- Excellent Research Award, 2010 Korean Transportation Association in America, Washington DC (2011).
- Innovative Research Award, Best Paper and Presentation at the GAIN 2009 Conference, University of Texas at Austin (2009).
- PBS&J Poster Award, Best Research Poster at the GAIN 2009 Conference, University of Texas at Austin (2009).
- Graduate Student Professional Development Award, University of Texas at Austin (2008).
- Graduate Research Assistantship, University of Texas at Austin (2004 to December 2010).

PROFESSORIAL SERVICES:

Professional Association Membership:

- Transportation Research Board, National Research Council, National Academy of Sciences Committee on *Nanotechnology-Based Concrete Materials Task Force (AFN15T)* – member and committee communication coordinator (2013 to present).
- Transportation Research Board, National Research Council, National Academy of Sciences Committee on *Strength and Deformation Characteristics of Pavement Sections (AFD80)* – member (2012 to present).
- Transportation Research Board, National Research Council, National Academy of Sciences Committee on *Application of Emerging Technologies to Design and Construction (AFH30)* – member (2011 to present).
- Association of Asphalt Paving Technologists, member (2013 to present).
- Korean-American Scientists and Engineers Association member, Orlando chapter council member (2009 to present).
- Korean Transportation Association in America, Auditor (2009 to present).
- ASCE Geo-Institute student member (2006 to 2010).
- UT Korean Student Association, Seminar director (2009 to 2010).
- UT Korean Civil Engineering Graduate Student Association, President (2009).

Paper Review Services:

- Since 2010, over **twenty** paper reviews on ASCE Journal of Performance of Constructed Facilities, ASCE Journal of Transportation Engineering, Journal of Transportation Research Board, International Journal of Pavement Research and Technology, and Geo-Institute Special Publication, KSCE Journal of Civil Engineering, Soil Dynamics and Earthquake Engineering, and ASTM Journal of Testing Evaluation, Sensors, Material Express.

Student Advising Services:

- Currently supervising **total eight graduate students and one undergraduate student** in research
Undergraduate student – Quincy Geddes (STEM awardee)
M.S. student – Hamid Maherini (completed 05/2013), Zachary Behring (completed 12/2013)
Ph.D. student – Baig Al Muhit, Kazi Tasneem, Jinwoo An, Behnam Golestani, Liuliu Wu (co-advising)

LICENSE REGISTRATION AND CERTIFICATE:

EIT – April, 2009

PUBLICATIONS:

Journal Papers: (* = corresponding)

*Note: (1) In the US, ASCE, ACI, ASTM, TRR are generally good journals in civil engineering.
(2) TRR has the acceptance rate of 25% or less.
(3) * = corresponding author.*

1. K. Tasneem, B. H. Nam*, K. Tasneem, "Municipal Solid Waste Incineration (MSWI) Ash as Sustainable Transportation Materials – A Review and Characterization," *Waste Management* (submitted).
2. Z. Behring, J. Y. Kim, B. H. Nam*, M. Chopra, "Evaluating the Use of Recycled Concrete Aggregate in a French Drain Applications", *Journal of Testing and Evaluation, ASTM* (submitted).
3. S.-H. Kim, J. Yang, B. H. Nam, J.-H. Jeong, "Effect of Materials and Age on the Coefficient of Thermal Expansion of Concrete Paving Mixtures," *Road Materials and Pavement Design* (submitted).
4. J. Y. Kim, B. H. Nam*, J. W. An, K. M. Tasneem, "Characterization of Municipal Solid Waste Incineration Ashes when Used as Mineral Additions in Cement-Based Materials," *ACI Materials* (submitted).
5. S.-H. Kim, J. Yang, B. H. Nam*, K. Mcfall, J. H. Jeong, "Estimate of Coefficient of Thermal Expansion for Concrete Pavement Design," *Advances in Engineering Software, Elsevier* (submitted).
6. B. H. Nam, M. R. Murphy, M. Arellano, Z. Zhang, "Improved the Structural Condition Index for Pavement Structural Evaluation at Network Level", *International Journal of Pavement Engineering* (under 2nd review).
7. J. Y. Kim, B. H. Nam*, Z. Behring, B. Al Muhit, "Evaluation of Re-Cementation Reactivity of Recycled Concrete Aggregate Fines," *Transportation Research Record* (accepted).
8. Y. -C. Kang, B. H. Nam*, J. Zornberg (2014), "Pullout of Geogrid Reinforcement with In-Plane Drainage Capacity in Cohesive Soils", *KSCE Journal of Civil Engineering* (accepted).
9. B. H. Nam*, H. Maherinia, A. Behzadan (2014), "Mechanical Characterization of Asphalt Tear-Off Roofing Shingles in Hot-Mix Asphalt", *Construction and Building Materials, Elsevier*, Vol. 50, 308-316.
10. B. H. Nam*, K. H. Stokoe (2014), "Improved Rolling Dynamic Deflectometer for Continuous Pavement Deflection Measurements," *Journal of Testing and Evaluation, ASTM* (in press).
11. B. H. Nam*, J. Y. Kim, J. W. An, B. J. Kim (2013), "A Review on the Effects of Earthborne Vibrations and the Mitigation Measures," *International Journal of Railway*, Vol. 6, No. 3, pp. 95-106.
12. B. H. Nam, C. Suh, M. Won (2013), "Fatigue-Life Prediction of Full-Scale Concrete Pavement Overlay over Flexible Pavement Using Super-Accelerated Pavement Testing," *ACI Materials Journal*, Vol. 110, No. 1 pp 1-10.
13. B. H. Nam (2011), "Transition of the Rolling Dynamic Deflectometer Device from a Screening

- Tool to an Evaluation Tool for Rigid Airfield Pavement Project,” *Transportation Research Record* No. 2206, pp 39-51.
14. B. H. Nam, L. Y. Lee, K. H. Stokoe, D. -H. Chen, J. -S. Lee (2011), “Application of RDD Continuous Profiling in Maintenance and Rehabilitation of Concrete Pavements,” *ASCE Geotechnical Special Publication 218: Emerging Technologies for Material, Design, Rehabilitation, and Inspection of Roadway Pavements*, pp 125-132.
 15. B. H. Nam, T. Scullion, K. H. Stokoe, II, J. -S. Lee (2011), "Rehabilitation Assessment of Jointed Concrete Pavement Using the Rolling Dynamic Deflectometer and Ground Penetrating Radar," *Journal of Testing and Evaluation, ASTM*. Vol 39, No. 3.
 16. D. -H. Chen, B. H. Nam, Z. Yao (2010) “Utilizing Advanced Characterization Tools to Prevent Reflective Cracking” *Journal of Performance of Construction Facilities, ASCE*. Vol. 24, No. 4.
 17. L. Y. Lee, B. H. Nam, B. H., K. H. Stokoe, II, (2009) “Improved Testing Speeds and Rolling Noise Estimation of the the Rolling Dynamic Deflectometer,” *Geotechnical Special Publication 193: Material, Design, Construction, Maintenance, and Testing of Pavement*, pp 31-37.
 18. D. -H. Chen, B. H. Nam, K. H. Stokoe, II, (2008) “Application of the Rolling Dynamic Deflectometer to Forensic Studies and Pavement Rehabilitation Projects,” *Transportation Research Record No 2084*, pp73-82.
 19. L. Y. Lee, K. H. Stokoe, II, D. -H. Chen, B. H. Nam, (2005) “Monitoring Pavement Changes in a Rehabilitation Project with Continuous RDD Profiles,” *Transportation Research Record No. 1905*, pp3-16.

Conference Papers and Presentations:

1. K. Tasneem, B. H. Nam, J.Y. Kim, “Effects of Aggregate on the Thermal Expansion Behavior of Concrete,” ASCE T&DI Congress (paper accepted)
2. Z. Behring, B. H. Nam, M. Chopra, “Drainage Performance Evaluation of Reclaimed Concrete Aggregate,” ASCE T&DI Congress (paper accepted).
3. J.-W. An, B.H. Nam, “Numerical Analysis of Reflective Cracking in an Asphalt Concrete Overlay over a Flexible Pavement,” Geohubei International Conference 2014 (paper accepted).
4. J.Y. Kim, K. Tasneem, B.H. Nam, H.-B. Yun, Y.H. Sohn, “Material Characterization of Municipal Solid Waste Incinerator (MSWI) Ash as Road Construction Materials,” Geohubei International Conference 2014 (paper accepted).
5. Z. Behring, B.H. Nam, M. Chopra, “Permeability Evaluation of Reclaimed Concrete Aggregate,” Geohubei International Conference 2014 (paper accepted).
6. B. H. Nam, M. R. Murphy, J. W. An, “Improvements to the AASHTO Subgrade Resilient Modulus (Mr) Equation”, 2014 Geo-Congress, Atlanta, GA, Feb 2014 (paper accepted).
7. B. Al Muhit, B. H. Nam, “Molecular Dynamics Approach for Nanostructure of Calcium-Silicate-Hydrate in Concrete: Review and Recommendation”, Transportation Research Board 93rd Annual Meeting, Jan 12-26, 2014, Washington D.C.
8. K. Tasneem, B. H. Nam, K. Tasneem, “Municipal Solid Waste Incineration (MSWI) Ash as Sustainable Transportation Materials – A Review and Characterization,” Transportation Research Board 93rd Annual Meeting, Jan 12-26, 2014, Washington D.C.
9. J.-S. Lee, K. H. Stokoe II, B. H. Nam, E. Oshinski, “Assessment of the Structural Condition of Galveston Airport Pavements After Hurricane Ike Using the Rolling Dynamic Deflectometer”, Transportation Research Board 93rd Annual Meeting, Jan 12-26, 2014, Washington D.C.
10. B. H. Nam, M. R. Murphy, Z. Zhang, M. Arellano, “Improved structural condition index for pavement evaluation at network level,” 2013 The Airfield & Highway Pavement Conference, Los Angeles, CA, June 2013.
11. B. H. Nam, K. H. Stokoe, M. Won, J. A. Bay, “A multi-purpose pavement testing device: Application of the Rolling Dynamic Deflectometer and the Stationary Dynamic Deflectometer in pavements,” 2013 The Airfield & Highway Pavement Conference, Los Angeles, CA, June 2013.

12. Stokoe, K. H., Lee, J.-S., Nam, B. H., Scullion, T., Liu, W., Leidy, J., Claros, G. J. (2013), "Development and Initial Testing of Total Pavement Acceptance Device", Transportation Research Board 92nd Annual Meeting, Jan 2013, Washington D.C. (**acceptance rate=50%**)
13. Nam, B.H., Stokoe, K.H. (2012), "Evaluating Fatigue Performance of Concrete Overlay over Asphalt Pavement," Transportation Systems Workshop 2012, Austin, Texas March 2012 (*non-paper presentation*).
14. Nam, B.H., Murphy, M. R., Zhang, Z. (2012), "Pavement Structural Evaluation at Network Level Using the FWD," Transportation Systems Workshop 2012, Austin, Texas, March 2012 (*non-paper presentation*).
15. Stokoe, K.H, Nam, B.H., Lee, J.-S., Kallivokas, L., Scullion, T., Leidy, J., Claros, G., Chen, D.-H. (2012), "Developing a New, Multi-Function Pavement Testing Device," Transportation Systems Workshop 2012, Austin, Texas, March, 2012
16. Stokoe, K.H., Nam, B.H., Lee, J.-S., Oshinski, E. (2012), "Characterization of airport pavements using the Rolling Dynamic Deflectometer," Transportation Systems Workshop 2012, Austin, Texas, March 2012.
17. Nam, B.H., Murphy, M. R., Arellano, M., Zhang, Z., Hwang, J. (2012), "Pavement Structural Evaluation at Network Level Using the Falling Weight Deflectometer," Transportation Research Board 91st Annual Meeting, Jan 2012, Washington D.C. (**acceptance rate=50%**)
18. Hwang, J.-W. Murphy, M. R., Zhang, Z., Chi, S.-K., Nam, B.H. (2012), "The Development of a Conceptual Framework for a District 4-Year Pavement Management Plan: Implementation of Network-Level Project Screening Process," Transportation Research Board 91st Annual Meeting, Jan 2012, Washington D.C. (**acceptance rate=50%**)
19. Stokoe, K.H., Nam, B.H., Lee, J.-S., Cox, B. R., Oshinski, E. (2011), "Investigations of Galveston Airport Pavements After Hurricane IKE in 2008 and Liquefaction Sites in Residential after the New Zealand Earthquake in 2010," *Third-International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation*, Semarang, Indonesia.
20. Nam, B. H., Lee, J., Stokoe, K. H., Chen, D. H., Lee, J.-S. (2011), "Application of Rolling Dynamic Deflectometer Continuous Profiling in Pavement Maintenance and Rehabilitation," *Geohunan International Conference II*, Hunan, China.
21. B.H. Nam, K.H. Stokoe, J.-S. Lee, T. Scullion, J. Leidy, E. Oshinski (2011), "Characterization of Jointed Concrete Pavement Under Daily and Seasonal Temperature Variations Using RDD and FWD Measurements," *Transportation Research Board 90th Annual Meeting*, Jan. 24, 2011, Washington D.C. (**acceptance rate=50%**)
22. Nam, B. H., Lee, J.-S., Stokoe, II, K. H., (2009) "Advanced Tool for Continuous Profiling Airport Pavements: Rolling Dynamic Deflectometer and Second-Generation Rolling Sensors," *GAIN 2009 Conference*, University of Texas at Austin, Austin, Texas, February 17, 2009. (**Best Paper Award**).
23. Nam, B. H., Lee, L.Y., Turner, D. J., Stokoe, II, K. H., McNerney, M. T., Chang, G. K., (2009) "Evaluation of Airfield Pavements at Denver International Airport Using the Rolling Dynamic Deflectometer and Second-Generation Rolling Sensor" *Transportation Research Board 88th Annual Meeting*, Jan. 11- Jan. 15, 2009, Washington D.C. (**acceptance rate=50%**)
24. Stokoe, II, K. H, Lee, L.Y., Chen, D.H., Oshinski, E., Joh, S.H., Nam, B.H., (2005) "Continuous Deflection Measurements of Highway and Airport Pavements with the Rolling Dynamic Deflectometer" *ICPT 2005, 5th International Conference in Pavement Technologies*, May 10 – May 12, 2005, Seoul, South Korea.

INVITED TALKS:

1. Dongguk Univerisity, "UCF Introduction - Study Abroad and Going to the U.S.", Seoul, Korea,

- Sept 2013.
2. Kangwon National University, "Beneficial use of Recycling Materials in Road Construction," Korea, Sept 2013.
 3. The Korean Institute of Construction Technology (KICT), "Graphene-Cement Composite for Structural Health Monitoring," Korea
 4. Incheon Port Authority, "Monthly Seminar: High Performance Concrete for Off Shore Structures," Korea
 5. Korean Expressway Corporation, "Continuous Pavement Testing Device: the Rolling Dynamic Deflectometer," Korea, Sept 2013.
 6. ENB Group (Engineering, Environment, Energy-Bio), "Multi-Function Materials: Carbon-Based Cement Composite," Korea, Sept 2013.
 7. Hinkley Center for Solid and Hazardous Waste Management, "Waste-to-Energy Ash Utilization in Road Construction", March 2013.
 8. Hongik University, "Florida's Sinkhole and Organic Soils," Seoul, Korea, July 2012.
 9. Kyunghee University, "Special Geotechnical and Pavement Problems in Florida," Suwon, Korea, July 2012.
 10. Korean Railroad Research Institute, "History and Future of Continuous Pavement Deflection Measurement Devices", Seoul, Korea, July 2012.
 11. University of Wisconsin at Madison, "Florida's Special Geotechnical and Pavement Problems," Madison, Wisconsin, June 2012.
 12. Florida Department of Transportation, "Continuous Pavement Testing Devices and New Developments," Gainesville, Florida, April 2012.
 13. Kyunghee University, "The Dynamic Deflectometer: A Multi-Purpose Pavement Testing Devices," Suwon, Korea, October 26, 2010.
 14. Fugro Consultants Inc., "History of the Texas Rolling Dynamic Deflectometer and New Developments," Austin, Texas, January 14, 2010.
 15. The University of Texas at Austin, "Continuous Characterization Tool for Pavement Structural Evaluations: Rolling Dynamic Deflectometer Continuous Profiling," UT Geo-Institute Graduate Student Organization, Austin, Texas, February 15, 2007.
 16. The University of Texas at Austin, "Super-Accelerated Pavement Testing Using the Stationary Dynamic Deflectometer", Korean Geotechnical Student Seminar, Austin, Texas, 2008

Media/Newspaper Exposures:

- WFTV Channel 9 Orlando, Video Reports, "Summer bay resort guests recount escaping from sinkhole", 8/13/2013.
- WDBO (radio) interview, 8/12/2013.
- CBC Radio, "When sinkholes attack: from Orlando to Montreal," http://www.cbc.ca/thecurrent/episode/2013/08/20/when-sinkholes-attack-from-orlando-to-montreal/index.html#iglmqld_78182
- Orlando Sentinel, Newspaper Article, "Disney-area resort collapses into 100-foot wide sinkhole", 8/12/2013, http://articles.orlandosentinel.com/2013-08-12/news/os-sinkhole-damage-disney-area-resort-20130812_1_walt-disney-world-resort-sinkhole-resort-president/3
- Engineering News-Record, "Orlando Resort Condo Partially Collapses Into 100-ft wide Sinkhole," 08/12/2013.
- North Florida Now. Com, "Researchers working to predict sinkhole formation," 8/06/2013, <http://northfloridanow.com/researchers-working-to-predict-sinkhole-formations-p9432-92.htm>
- Alaska Dispatch News and voices from the Last Frontier, 8/13/2013 <http://www.alaskadispatch.com/article/20130813/florida-sinkhole-are-disney-world-visitors-walking-hole-ground>
- Seminole Voice, "The sinkhole hunters," 8/28/2013, <http://www.seminolevoice.com/news/2013/aug/28/when-bottom-drops-out/>

- Winter Park / Maitland Observer, "Sinkhole hunters", 8/28/2013
<http://www.wpmobserver.com/news/2013/aug/28/when-bottom-drops-out/>
- The Christian Science Monitor, "Sinkhole: Disney World visitors walking on holey ground?", 8/13/2013 <http://www.csmonitor.com/Science/2013/0813/Sinkhole-Disney-World-visitors-walking-on-holey-ground>

UCF Media/Newspaper:

- UCF CECS News, "CECS Asst. Professor Hopes to Find Way to Predict Sinkholes", 8/05/2013,
<http://www.cecs.ucf.edu/newsarticle?NewsID=566>
- UCF Today, "Professor Looks for Way to Predict Sinkhole Before They Strike", 8/02/25013,
<http://today.ucf.edu/professor-looks-for-way-to-predict-sinkholes-before-they-strike/>
- Central Florida Future, "UCF professor aims to predict sinkholes", 8/18/2013,
<http://www.centralfloridafuture.com/news/ucf-professor-aims-to-predict-sinkholes-1.2831037>