FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM

Visit to University of Nebraska-Lincoln: March 02, 2021

This report summarizes the visit of **Sissy Nikolaou** from National Institute of Standards and Technology (NIST) that took place at the University of Nebraska-Lincoln on March 02, 2021.

ITINERARY OR AGENDA

The agenda of the visit is listed below. Please note that the time zone mentioned is based on visiting professional's location.

TIME:	ACTIVITY:
1:10 to 2:30 p.m. EST	Friedman Family Lecture - Presentation and Q&A
2:30 to 3:00 p.m. EST	Meeting with GradSWE (Women Engineers)
3:00 to 3:30 p.m. EST	Meeting with University of Nebraska-Lincon's Earthquake Engineering Faculty
3:30 to 4:00 p.m. EST	University of Nebraska - Earthquake Lab Tour
4:00 to 5:00 p.m. EST	Meeting with Nebraska EERI Chapter and SDC Team

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZERS:

- M. Khalid Saifullah, chapter co-president (Lincoln Campus), khalidsaif@huskers.unl.edu
- Ben Schnatz, chapter co-president (Omaha Campus), bschnatz@unomaha.edu
- Prof. Christine E. Wittich, chapter advisor (Lincoln Campus), cwittich@unl.edu
- Prof. Ece Erdogmus Skourup, chapter advisor (Omaha Campus), eerdogmus2@unl.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

Dr. Sissy Nikolaou's lecture was on the topic of "Functional Recovery – the new Frontier in Earthquake Design". She discussed the emerging concept of functional recovery and how it should be viewed and implemented in the context of earthquake resistant design of structures. The topic is novel in the sense that most of the people in the academia and industry are unfamiliar with the true meaning/definition of functional recovery and how it is related to the resilience of a community. The attendees found the lecture unique and quite intriguing which was evident from some interesting questions during the Q&A session. The attendees really enjoyed the lecture and were grateful to Dr. Sissy Nikolaou for her time and effort for this lecture.

Lecture Abstract

In the lecture titled "Functional Recovery – the new Frontier in Earthquake Design", Dr. Nikolaou discussed the emerging concept of Functional Recovery: a holistic basis for earthquake-resistant design incorporated in the recently released NIST-FEMA report to the Congress. This report includes recommendations that, if acted upon, may greatly improve the resilience of communities across the nation.

Professional Bio

Dr. Sissy Nikolaou serves as the Earthquake Engineering Group Leader for the Materials and Structural Systems Division at the National Institute of Standards and Technology (NIST). She has over 25 years of global experience in buildings and infrastructure systems, with emphasis on geotechnical and structural engineering, performance-based design, soil-structure interaction, seismic hazard analysis, liquefaction evaluation and mitigation, multi-hazard risk assessments of critical facilities; and emergency and action preparedness planning for communities.

Dr. Nikolaou earned her 5-year Civil Engineering Diploma from the National Technical University of Athens, Greece with emphasis on Structural Engineering M.Sc. and Ph.D. from the University at Buffalo with focus on geotechnical and earthquake engineering. Nikolaou has served as Director of the Earthquake Engineering Research Institute (EERI), Applied Technology Council (ATC), and is currently a Governor of the Geo-Institute of the American Society of Civil Engineers (ASCE) where she holds the Fellow status, and she is an advisory member of GEER. Dr. Nikolaou has led reconnaissance missions of major natural disasters of earthquakes and hurricanes around the world, including Hurricane Sandy in NYC, and Mineral-VA, Cephalonia-Greece, Muisne-Ecuador and Puebla-Morelos Mexico earthquakes; and has played a key role in the development of new generation guidelines and codes for extreme events. She is active in seismic codes development and has been the chair for the seismic committee for the NYC Building Code since 2014.

For her contributions in earthquake engineering, Dr. Nikolaou was invited to the White House to participate in the Earthquake Resilience Summit of 2016. Her recognitions include the Prakash Prize for Excellence in Geotechnical Earthquake Engineering, the 2017 ACEC-NY Principal of the Year, and Board-Certification in Earthquake Engineering by the Academy of the Geo-Professionals (AGP).

SUPPLEMENTAL ACTIVITES

Meeting with GradSWE (Women Engineers)

Women Engineers in Graduate Studies, who are a part of student organization GradSWE, got a chance to interact with Dr. Sissy Nikolaou. As an inspirational and distinguished women engineer herself, Dr. Nikolaou discussed her struggles, the obstacles that she faced in her career, and her efforts to overcome those obstacles. Her advices were well received by the attendees and they were thankful to Dr. Nikolaou for spending time with them.

Meeting with University of Nebraska-Lincon's Earthquake Engineering Faculty

In this meeting, University's earthquake engineering faculty members got an opportunity to meet with Dr. Nikolaou. The faculty members discussed their research projects and activities, while Dr. Nikolaou also shared some insight into current and potential projects that NIST is undertaking.

University of Nebraska - Earthquake Lab Tour

As the visit was virtual, aforementioned geographically distributed organizers gave a tour of the earthquake testing instruments and facilities available at University of Nebraska-Lincoln. The operation and capabilities of small shake tables at both Lincoln and Omaha Campus, along with a recently added state-of-the-art large 7' x 7' shake table (3 tons payload capacity), were demonstrated to familiarize her with the increasing potential that our university possesses in terms of earthquake engineering research.

Meeting with Nebraska EERI Chapter and SDC Team

Undergraduate and graduate students of our student chapter (including the students who are participating in EERI's annual seismic design competition) got an opportunity to meet with Dr. Nikolaou. Students got a rare chance to discuss more about their resume, education, career goals, work-life balance and were lucky enough to get some valuable recommendations from one of the most experienced persons in their field. As both copresidents were participants in that meeting, we can testify that meeting with Dr. Nikolaou greatly improved our shaky motivation.

RESULTS, FEEDBACK AND LESSONS LEARNED

The main challenge was to make the virtual visit as appealing as an in-person visit. We were successful in attracting the participants to a good extent. However, we believe there is no substitute to an in-person visit and we would very much like to have an in-person visit next year (as things are going back to normal). It would be great for the visiting professional and the chapter. Dr. Nikolaou has expressed her desire to visit us in-person, and we are very much looking forward to it.

ACKNOWLEDGEMENTS

The University of Nebraska-Lincoln EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the virtual visit of Sissy Nikolaou through their Friedman Family Visiting Professional Program endowment. The Student Chapter would also like express their gratitude to Dr. Nikolaou for her time and efforts to make this lecture happen.

LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

- Item 1, i.e. announcement for the event
- Item 2, welcome/introductory slides by the student chapter for the Visiting Professional

Item 1:
Announcement/Flyer

SAVE THE DATE!

COLLEGE OF ENGINEERING

The University of Nebraska Earthquake Engineering Research Institute (EERI) Student Chapter is pleased to be hosting Dr. Sissy Nikolaou for a **VIRTUAL** guest lecture on **"Functional Recovery – the new Frontier in Earthquake Design"** through the Friedman Family Visiting Professionals Program of EERI. In this lecture Dr. Nikolaou will discuss the emerging concept of Functional Recovery,: a holistic basis for earthquake-resistant design incorporated in the recently released NIST-FEMA report to the Congress. This report includes recommendations that, if acted upon, may greatly improve the resilience of communities across the nation. All Civil and Environmental Engineering (CEE) students, Architectural Engineering (AE) students and/or academics/professionals in these fields and disaster management areas are particularly encouraged to attend this lecture. **REGISTRATION IS FREE.**

DATE & TIME: March 2, 2021 from 12:00-1:30 PM CST (including Q&A session)

TO REGISTER: Please go to **https://eeri.swoogo.com/2021ffvp/792711** and when prompted, please select **University of Nebraska Student Chapter Member** regardless if you are a Student Member or not. Please reach out to eeri.unl@gmail.com with any questions.

SPEAKER BIO:

Dr. Sissy Nikolaou serves as the Earthquake Engineering Group Leader for the Materials and Structural Systems Division at the National Institute of Standards and Technology (NIST). She has over 25 years of global experience in buildings and infrastructure systems, with emphasis on geotechnical and structural engineering, performance-based design, soil-structure interaction, seismic hazard analysis, liquefaction evaluation and mitigation, multi-hazard risk assessments of critical facilities; and emergency and action preparedness planning for communities.

Nikolaou earned her 5-year Civil Engineering Diploma from the National Technical University of Athens, Greece with emphasis on Structural Engineering M.Sc. and Ph.D. from the University at Buffalo with focus on geotechnical and earthquake engineering. Nikolaou has served as Director of the Earthquake Engineering Research Institute (EERI), Applied Technology Council (ATC), and is currently a Governor of the Geo-Institute of the American Society of Civil Engineers (ASCE) where she holds the Fellow status, and she is an advisory member of GEER.

Nikolaou has led reconnaissance missions of major natural disasters of earthquakes and hurricanes around the world, including Hurricane Sandy in NYC, and Mineral-VA, Cephalonia-Greece, Muisne-Ecuador and Puebla-Morelos Mexico earthquakes; and has played a key role in the development of new generation guidelines and codes for extreme events. She is active in seismic codes development and has been the chair for the seismic committee for the NYC Building Code since 2014.

For her contributions in earthquake engineering, Dr. Nikolaou was invited to the White House to participate in the Earthquake Resilience Summit of 2016. Her recognitions include the Prakash Prize for Excellence in Geotechnical Earthquake Engineering, the 2017 ACEC-NY Principal of the Year, and Board-Certification in Earthquake Engineering by the Academy of the Geo-Professionals (AGP).

We look forward to having you join us!

Item 2: Welcome/Introductory Slides

University of Nebraska-Lincoln Chapter

Functional Recovery – the new Frontier in Earthquake Design

EERI - Friedman Family Visiting Professionals Program 03/02/2021

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Visiting Professional – Guest Speaker

Sissy Nikolaou

- Sissy Nikolaou, Ph.D., P.E., D.GE
- Serves as the **Earthquake Engineering Group Leader** for the Materials and Structural Systems Division at the National Institute of Standards and Technology (NIST)
- **Over 25 years of global experience** in buildings and infrastructure systems, with emphasis on geotechnical and structural engineering, performance-based design, soil-structure interaction, seismic hazard analysis, liquefaction evaluation and mitigation, multi-hazard risk assessments of critical facilities; and emergency and action preparedness planning for communities.

Background Photo: 1933 Long Beach Earthquake
Courtesy of: USGS and EERI

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Sissy Nikolaou

•Sissy Nikolaou, Ph.D., P.E., D.GE

- Earned her 5-year Civil Engineering Diploma from the National Technical University of Athens, Greece with emphasis on Structural Engineering
- **M.Sc. and Ph.D. from the University at Buffalo** with focus on geotechnical and earthquake engineering
- Served as Director of the **Earthquake Engineering Research Institute** (EERI), **Applied Technology Council** (ATC), and is currently a **Governor of the Geo-Institute of the American Society of Civil Engineers** (ASCE) where she holds the Fellow status, and she is an **advisory member of GEER**.

Background Photo: 1933 Long Beach Earthquake
Courtesy of: USGS and EERI

3

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Background Photo: 2019 Ridgecrest Sequence
Courtesy of: USGS and EERI

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Instructions

- All attendees should turn off their microphones during the lecture.
- Please write your questions in the chat window (direct them to the host). All questions will be answered at the end of the lecture.

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