

2014-2015 ANNUAL REPORT

University of Michigan Student Chapter of the Earthquake Engineering Research Institute

Report Date: May 1, 2015



This report summarizes the membership and activities conducted by the University of Michigan Student Chapter of the Earthquake Engineering Research Institute during the 2014-2015 academic year.

MISSION & GOALS

The EERI Student Chapter at the University of Michigan is dedicated to promoting research and learning in fields related to earthquake engineering through events within the Civil and Environmental Engineering department and outreach to the local community.

MEMBERSHIP

The University of Michigan Student Chapter had a total of 17 members in 2014-2015.

OFFICERS

The Board consisted of the following members:

Role	Name	Email	Student Status
President	Jonathan Hubler	jhubler@umich.edu	Graduate student
Vice President	Dan Wei	danwei@umich.edu	Graduate student
Treasurer	Julie Fogarty	jefogart@umich.edu	Graduate student
Secretary	Enzo Stante	enzstant@umich.edu	Graduate student

Board meetings were held as needed for chapter events.

FACULTY & INDUSTRY ADVISORS

Jason McCormick, PhD, Associate Professor, Department of Civil and Environmental Engineering, University of Michigan, jpmccorm@umich.edu

MEMBERS

A complete list of members is shown below.

Name	Email	Student Status
Jonathan Hubler	jhubler@umich.edu	Graduate student
Dan Wei	danwei@umich.edu	Graduate student
Julie Fogarty	jefogart@umich.edu	Graduate student

Enzo Stante	enzstant@umich.edu	Graduate student
Brenden Ritola	ritolab@umich.edu	Graduate student
Athena Grizi	agkrizi@umich.edu	Graduate student
Andrew Burton	arbut@umich.edu	Graduate student
Eric Warner	erwarner@umich.edu	Graduate student
Rudy Nie	nie@umich.edu	Graduate student
Sean O'Connor	ocosean@umich.edu	Graduate student
William Greenwood	wwgreen@umich.edu	Graduate student
Nathan Fleming	fleminat@umich.edu	Undergraduate student
Nick Hoyt	nickhyt@umich.edu	Undergraduate student
Elizabeth Anderson	elixabet@umich.edu	Undergraduate student
Richelle Penn	rlpenn@umich.edu	Undergraduate student
Malek Atassi	matassi@umich.edu	Undergraduate student
Wai Kit Chan	chwaikit@umich.edu	Undergraduate student

BUDGET & FINANCIALS

The EERI student chapter at the University of Michigan has an account set up through the university, with a current balance of \$175. Chapter funds were used to support the undergraduate seismic design team (\$200 was funded for team registration, and \$600 was used to fund student travel and lodging at the 2015 EERI Annual Meeting by the university).

CHAPTER ACTIVITIES

REGULAR CHAPTER MEETINGS

A general meeting and recruitment event for the EERI Chapter was held on October 21, 2014, with an attendance of 21 graduate and undergraduate students. The benefits of membership in EERI, the undergraduate SDC, and general chapter goals (speakers and outreach) were discussed. A meeting was held on October 29th to form undergraduate SDC team and to register the participants. The meeting attendance was 10 people. Smaller meetings were held as necessary in preparation for chapter events.

EERI/NeWinCEE Meet the Speaker Event

The University of Michigan EERI and the Network for Women in Civil and Environmental student chapters co-hosted Dr. Annie Kammerer for a seminar on April, 1, 2015. Before the seminar a meet and greet event was held with Dr. Kammerer, who provided interesting and informative advice on careers and her experiences working in the earthquake engineering field. A flier for the event is attached.

EERI/NewinCEE Sponsored Seminar

The University of Michigan EERI and the Network for Women in Civil and Environmental student chapters co-hosted Dr. Annie Kammerer for a seminar entitled, "Seismic Design and Re-evaluation of Nuclear Plants: Past, Present and Future." A flier for the event is attached.



Figure 1. EERI/NeWinCEE Seminar with Dr. Annie Kammerer

Local Outreach

EERI student chapter members participated in several community outreach programs with Professor Jason McCormick. The members visited Bates Elementary in Dexter to teach second-graders about bridges and allow them to experiment with a computer program to build and test their own bridges. The group also hosted similar bridge activities and demonstrations of soil liquefaction using a liquefaction tank for 5-8th graders during the M-Connex Xplore Engineering Summer Camp and during a visit from the Ovid-Elsie Science Society.

EERI chapter members also participated in events for the Detroit Area Pre-College Engineering Program (DAPCEP) which is a non-profit, Detroit-based organization whose mission is to increase the number of historically under-represented minority students who are interested and prepared to enter the fields of engineering and science. During the students visit program, EERI members set up and demonstrated the process of obtaining geophysical data using Multi-Channel Analysis of Surface Waves (MASW) surveys.

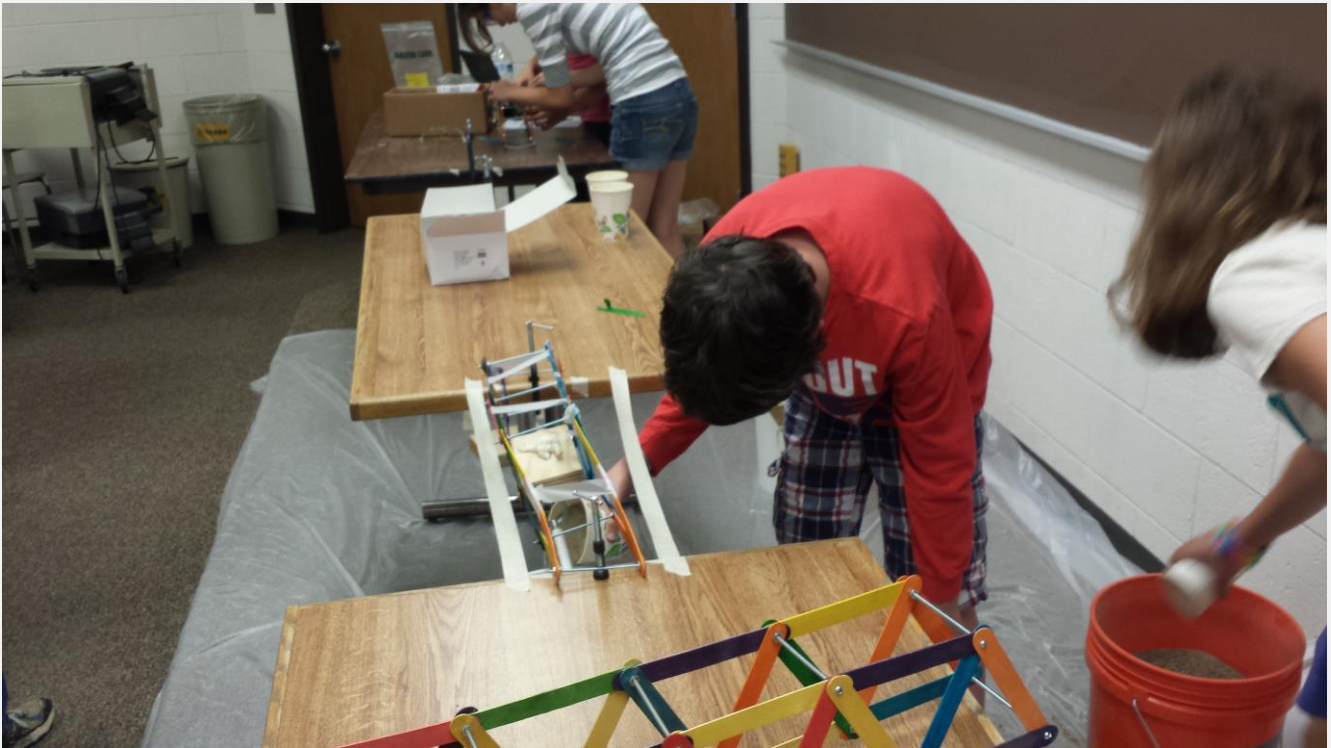


Figure 2. Building and testing bridges during visit from Ovid-Elsie Science Society



Figure 3. Demonstration of Soil Liquefaction using a Liquefaction Tank to Ovid-Elsie Science Society

SEISMIC DESIGN COMPETITION TEAM

The University of Michigan EERI student chapter organized a team to compete in the undergraduate SDC for the second consecutive year. The 2015 team consisted of 6 students who met regularly to complete design and construction of the Balsa wood structure.

SDC Team Members

A complete list of members is shown below.

Name	Email	Role
Nathan Fleming	fleminat@umich.edu	Team Manager
Nick Hoyt	nickhyt@umich.edu	Team Member
Elizabeth Anderson	elixabet@umich.edu	Team Member
Richelle Penn	rlpenn@umich.edu	Team Member
Malek Atassi	matassi@umich.edu	Team Member
Wai Kit Chan	chwaikit@umich.edu	Team Member

SDC Team Financial Sponsors

A list of financial sponsors for the SDC team.

Name	Email	Amount	Note
University of Michigan	soas@umich.edu	\$800.00	

Team results and lessons learned

The 2015 SDC team from the University of Michigan finished in 34th place at the national competition. The structure collapsed during the third ground motion application. In the future the team hopes to improve on design by building prototypes for testing.

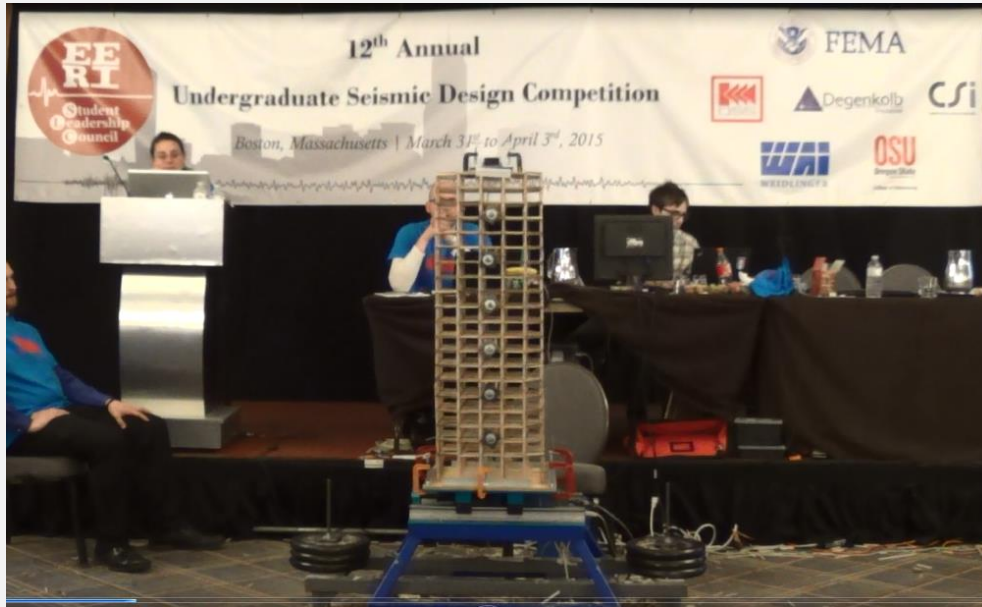


Figure 4. University of Michigan 2015 SDC Team structure during competition

ELECTION & ELECTION RESULTS

An election for officers for the 2015-2016 academic year has not been held yet. Officers for the coming year will be determined during the summer.

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, Meet and Greet Event flier
- Item 2, Dr. Kammerer Seminar Event flier



Meet and Greet with Dr. Annie Kammerer

**Wednesday, April 1, 2015
2:30 pm, 2355 G.G. Brown**

Coffee and donuts will be provided.

BIOGRAPHY

Dr. Annie Kammerer is a private seismic hazard and risk consultant and a visiting scholar at the Pacific Earthquake Engineering Research Center at UC Berkeley. Her work is focused on analysis and regulatory processes associated with probabilistic seismic and tsunami hazard and risk assessments for nuclear plants and other critical facilities. She recently finished a year as a Principal Seismologist with the Bechtel Corporation in San Francisco. Prior to that, she spent 7 years at the US Nuclear Regulatory Commission, where she coordinated the NRC Seismic Research Program. She was the project manager and contributing author of the current US guidance on performing seismic hazard assessments and seismic margin analysis for nuclear facilities. Prior to joining the NRC in 2006, she was a consultant in the Risk and Advanced Technology groups in the international design firm, Arup. As seismic hazard lead for the Americas, her consulting work encompassed a wide variety of technical areas including geotechnical earthquake engineering, structural dynamics, seismology and risk assessment. She holds three degrees from UC Berkeley, including a PhD in geotechnical engineering with minors in strong motion seismology and structural engineering.



**Earthquake Engineering Research Institute and the
Network for Women in Civil and Environmental Engineering student chapters
at The University of Michigan**

**Wednesday, April 1, 2015
4:00 pm, 2355 G.G. Brown**

**Seismic Design and Re-evaluation of Nuclear Plants:
Past, Present and Future**

Annie Kammerer, PhD, PE

ABSTRACT

Since the beginning of the nuclear power industry, the framework and methods used in the seismic design and re-evaluation of the fleet of nuclear power plants in the US has gone through significant change and advancement. This presentation—targeted to the technically-inclined layperson—will cover a wide variety of topics including:

- Basic nuclear plant design concepts (how they work and what can go wrong)
- Why the engineering of nuclear plants is unique and challenging
- Brief history of seismic regulations, design approaches, and reevaluation efforts
- The performance-based and risk-informed methods used in the industry today,
- The impact of the Fukushima Daiichi accident, including current and future NRC efforts
- The NRC, IAEA, and the new global nuclear picture

BIOGRAPHY

Dr. Annie Kammerer is a private seismic hazard and risk consultant and a visiting scholar at the Pacific Earthquake Engineering Research Center at UC Berkeley. Her work is focused on analysis and regulatory processes associated with probabilistic seismic and tsunami hazard and risk assessments for nuclear plants and other critical facilities. She recently finished a year as a Principal Seismologist with the Bechtel Corporation in San Francisco. Prior to that, she spent 7 years at the US Nuclear Regulatory Commission, where she coordinated the NRC Seismic Research Program. She was the project manager and contributing author of the current US guidance on performing seismic hazard assessments and seismic margin analysis for nuclear facilities. Prior to joining the NRC in 2006, she was a consultant in the Risk and Advanced Technology groups in the international design firm, Arup. As seismic hazard lead for the Americas, her consulting work encompassed a wide variety of technical areas including geotechnical earthquake engineering, structural dynamics, seismology and risk assessment. She holds three degrees from UC Berkeley, including a PhD in geotechnical engineering with minors in strong motion seismology and structural engineering.