



## EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

Founded in 1948, EERI's mission is to reduce earthquake risk by (1) advancing the science and practice of earthquake engineering, (2) improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment, and (3) advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.

### NEWS OF THE INSTITUTE

#### ▶ 2016-2017 EERI/FEMA NEHRP Graduate Fellows in Earthquake Hazard Reduction

**Christine Z. Beyzaei** (M. EERI, 2014), a Ph.D. student in Geotechnical Engineering at the University of California, Berkeley, and **Nasser Marafi** (M. EERI, 2014), a Ph.D. student in Structural Engineering from the University of Washington, have been selected as the 2016-2017 EERI/FEMA NEHRP Graduate Fellows in Earthquake Hazard Reduction.



*Christine Z. Beyzaei*

*Nasser Marafi*

EERI awards graduate fellowships each year with support from FEMA and the National Earthquake Hazards Reduction Program. The award is given to foster the participation of capable individuals in furthering the goals and practice of earthquake hazard mitigation. The fellowships provide a stipend of \$12,000 that can be used for tuition, fees, research expenses, and attendance at the 2017 EERI Annual Meeting, March 7-10, 2017, in Portland, Oregon.

Beyzaei and Marafi were selected from a group of highly qualified applicants studying civil, environmental, mechanical, structural, and geotechnical engineering, geomechanics, public policy, and sustainable design and construction at universities across the nation. A subcommittee of EERI's Student Activities Committee, led by University of Nebraska-Lincoln Associate Professor **Terri R. Norton** (M. EERI, 2004), reviewed the application packages and made the final selections. The committee awarded honorable mention to candidates **Megan Boston** (M. EERI, 2012, Johns Hopkins University), **Trevor Carey** (M. EERI, 2013, University of California, Davis) and **Andrew Sen** (M. EERI, 2016, University of Washington).

**Christine Z. Beyzaei's** doctoral research focuses on fine-grained soil liquefaction effects, investigating observations from the Canterbury Earthquake Sequence through advanced laboratory testing and evaluation of depositional environment effects on liquefaction performance. The fellowship review committee noted her work showed great promise for improving engineering practice. Beyzaei graduated from the George Washington University in 2009 with a B.S. in Civil Engineering and from University of California, Berkeley in 2010 with an M.S. in Civil Engineering. From 2010-2013 she worked as a geotechnical engineer at **Mueser Rutledge Consulting Engineers** (EERI Bronze Subscribing Member, 2014) in New York City on both U.S. and international consulting projects. In addition to her academic and professional pursuits, Ms. Beyzaei was actively involved in the founding of the EERI-NYNE Regional Chapter, served as GEER Recorder from 2013-2015, and volunteered her time mentoring high school students with the ACE Mentor Program of America from 2011-2013. She is a registered civil engineer in the

state of California.

**Nasser Marafi** is part of an interdisciplinary team at the University of Washington (the M9 Project - <https://hazards.uw.edu/geology/m9/> ) and is currently studying the effects of large-magnitude subduction earthquakes on structures located in deep sedimentary basins. Within the M9 Project, a suite of physics-based simulations is being developed for a wide range of possible earthquake rupture scenarios. Marafi is comparing these generated ground motions with those recorded during subduction earthquakes inside and near basins in Japan, and is evaluating the intensity of these motions in terms of spectral acceleration, ground-motion duration, spectral shape, and structural collapse risk. Working with practitioners from the Structural Engineering Association of Washington, Nasser is currently developing a framework to incorporate basin effects into the seismic design of structures. The fellowship review committee expressed interest not only in Marafi's research topic, but also on its influence to expand research in this area.

Prior to joining the Ph.D. program, Nasser practiced structural engineering for five years and is a registered Professional Engineer in California. He is advised by professors **Jeffrey Berman** (M. EERI, 2000) and **Marc Eberhard** (M. EERI, 1990).

The Institute looks forward to highlighting Beyzaei and Marafi's research at the EERI 2017 Annual Meeting.

To learn more about the EERI/FEMA NEHRP Graduate Fellowship, visit the EERI website at <https://www.eeri.org/about-eeri/honors-awards/graduate-fellowship/> 

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### ► 2016 EERI Honorary Members: Marjorie Greene and Kathleen Tierney

The EERI Board of Directors selected **Marjorie Greene** (M. EERI, 1982) and **Kathleen J. Tierney** (M. EERI, 1987) as Honorary Members of the Institute. Honorary membership is awarded to recognize members who have made sustained and outstanding contributions to the field of earthquake engineering and to EERI and the pursuit of its objectives. Presentation of the 2016 EERI Honorary Member Awards took place at the EERI Annual Meeting in San Francisco.

EERI Honorary Member **Marjorie Greene** retired from EERI after an exemplary forty-year career of natural hazard mitigation work in which she focused on earthquake hazard mitigation, preparedness, and learning from earthquake programs in the U.S. and abroad. Among her many exceptional professional activities, Marjorie has been the managing editor of the World Housing Encyclopedia since its inception, consulted for the World Bank and the Government of India, advised several countries about their earthquake rebuilding programs, and coordinated over 50 reconnaissance missions by EERI members to investigate damage and glean lessons from major earthquakes around the world.



Marjorie Greene

All who have worked with Marjorie during her career agree that she was generous with her time, insightful with her comments, and discerning in her thinking. She has been an inspiration and model to fellow professionals in the earthquake hazard field, displaying a thoughtful, determined, results-oriented approach to her work. Many of EERI's active young and early career members can trace their involvement with EERI to interactions and encouragement from Marjorie, who created opportunities for them to engage and participate in EERI activities.

In a fitting tribute to her career, Marjorie was honored by the EERI Northern California Regional Chapter as the 2014 recipient of the Innovation and Exemplary Practice in Earthquake Risk Reduction award.

EERI Honorary Member **Kathleen J. Tierney** has provided long-standing leadership and major contributions towards advancing the understanding of social dimensions of earthquake risk. Over the course of her career as a disaster sociologist, her research has addressed key gaps and provided valuable synthesis across the breadth of the field, from disaster preparedness to emergency response, recovery, and

resilience. In addition to earthquakes in the U.S., Japan, and Haiti, she has studied Katrina and other major hurricanes, various technological disasters, and the terrorist attacks of September 11, 2001, in New York City. Through this multi-hazard perspective on social dimensions of disaster risk generally, she has enriched understanding of earthquake risk specifically and also facilitated the transfer of knowledge from the earthquake field to other hazards.



Kathleen Tierney

For over 20 years, Dr. Tierney has served as director or co-director of two of the most important centers in the disaster social sciences—the Disaster Research Center (DRC) at the University of Delaware and the Natural Hazards Center at the University of Colorado at Boulder. She has served on several committees at the National Academies, including the Committees on Disaster Research in the Social Sciences, the Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience, and the Committee to Advise the U.S. Global Change Research Program. She also participated on national committees on Earthquake Hazard Reduction and for the National Earthquake Hazard Reduction Program. Dr. Tierney has contributed to EERI for many years. She has served on the editorial board of *Earthquake Spectra*, and was a member of the Board of Directors from 2012 to 2015. She participated in EERI's reconnaissance studies of the 2003 Bam and 2011 Tohoku earthquakes, and was EERI's Distinguished Lecturer in 2006. Through these and other activities, Dr. Tierney has been a tireless, knowledgeable, and eloquent advocate for understanding the social dimensions of earthquake disasters and risk reduction.

For more information on the EERI Honorary Membership, visit the EERI website at <https://www.eeri.org/about-eeri/honors-awards/honorary-membership/> .

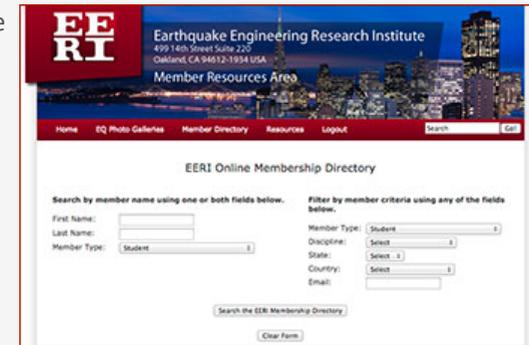
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### ► EERI Member Roster Online

One of the longtime benefits of Institute membership has been the **EERI Member Roster**. The "who's who" of the earthquake engineering community, the EERI Member Roster lists the contact information of active members and information about Institute history, leadership, chapters, bylaws, committees, and more.

Sensitive to the environmental impact of printing hundreds of EERI Member Rosters each year, the Executive Committee of the EERI Board of Directors has decided to skip a year of paper publishing in 2016, and produce a printed version of the roster in 2017.

By logging into the **Member Resources** section of the **EERI website**, members can access the full Member Directory online, searching not only for member information by name or location, but also filtering on discipline or member type. The online Member Directory is updated dynamically, with the newest members and the latest contact information changes added daily. Questions about logging in to the Member Resources section of the EERI website can be sent to Juliane Lane at [juliane@eeri.org](mailto:juliane@eeri.org)



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### ► EERI Post-Graduation Internship Positions Available

The Earthquake Engineering Research Institute (EERI) has one or two internship positions available for recent college graduates who are interested in gaining valuable professional experience while supporting the Institute's mission to reduce earthquake risk. These positions can begin as early as November 2016. Applications should be submitted by **October 19, 2016**.

The approximately six-month internships offer engagement in a number of interesting EERI projects and Institute activities, including **Learning from Earthquakes**, the **School Earthquake Safety Initiative**, the EERI Annual Meeting, and technical seminars and webinars.

Tasks are varied, although day-to-day work focuses on supporting EERI projects and staff through research, project and event coordination, and website development and maintenance.

Internship candidates should have:

- A bachelor's or master's degree in engineering, science, architecture, or public policy.
- Familiarity and interest with issues in earthquake risk reduction
- Proficiency in Excel and Word
- Basic HTML skills and some knowledge of website development and maintenance (WordPress and Joomla), or willingness to learn
- Skills with graphic design programs such as Adobe InDesign or Illustrator
- Ability to take initiative and independently solve problems
- Curiosity, strong interpersonal skills, and a flexible attitude towards work
- Basic GIS skills and knowledge of GIS software (ArcMap, ArcGIS Online) or a willingness to learn



The interns will need to work in the EERI office, which means living in the San Francisco Bay Area. (No moving or housing support provided). EERI interns are provided a monthly stipend of \$2,200.

EERI Post-Graduation internships are a great way to gain valuable professional experience, to be involved in meaningful projects related to seismic safety and risk reduction, and to make connections with EERI's multi-disciplinary professional community. The EERI office is conveniently located in downtown Oakland, close to BART and the freeway.

You can learn more about the EERI Internship program at <https://www.eeri.org/about-eeri/post-graduate-internship-program/>

Interested applicants should upload a resume, a one-page cover letter highlighting their qualifications and interest in the EERI internship program, and the names of two references to the secure website here: <https://www.eeri.org/cohost/registration/internship-application>. Preference is given to EERI members. Applications should be submitted by **October 19, 2016**. New internship positions become available every four to six months.

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## LEARNING FROM EARTHQUAKES

### ▶ EERI Seeks Information on Pawnee, Oklahoma Earthquake

On Saturday, September 3, 2016, a 5.8 magnitude earthquake struck 15km NW of Pawnee, Oklahoma. As part of its Learning from Earthquakes Program (LFE), EERI launched a virtual clearinghouse site to archive earthquake data and post observations from this event: <http://www.eqclearinghouse.org/2016-09-03-oklahoma/> 

Information and observations from EERI members and colleagues in the area will be posted on the clearinghouse site as becomes available, so please check back frequently.

Any members with information about earthquake impacts or who plan to conduct reconnaissance should contact Heidi Tremayne, EERI Program Manager at [heidi@eeri.org](mailto:heidi@eeri.org)

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### ► EERI-Eucentre-ReLUIS Reconnaissance Team in Italy



As part of the [Learning from Earthquakes program](#), EERI has joined with the European Centre for Training and Research in Earthquake Engineering ([Eucentre](#)) and Rete dei Laboratori Universitari di Ingegneria Sismica ([ReLUIS](#)) to conduct reconnaissance studying the impacts of the August 24, 2016 Amatrice, Italy earthquake from September 12-16, 2016.

We thank EERI members for the many responses to assist and support our mission to the region. In the tradition of EERI reconnaissance efforts, the team assembled for the Amatrice reconnaissance trip is represented by earthquake engineers from both academia and practice. This team was also designed by the LFE Executive Committee to provide opportunities for younger members participate in reconnaissance activities.

**Guido Magenes**, Associate Professor and Head of Masonry Structures Area, Eucentre, University of Pavia, is acting as team leader of the mission. EERI delegation members are:

- **Silvia Mazzoni** (M. EERI, 2010, and EERI Delegation leader), Consultant and Research Engineer at UC Berkeley
- **Erica Fischer** (M. EERI, 2010), Design Engineer, Degenkolb Engineers, Seattle
- **Paolo Calvi** (M. EERI, 2016), Assistant Professor, University of Washington
- **Dick Dreyer** (M. EERI, 1995), Principal, Holmes Culley, San Francisco

Additional members of the team from Eucentre are **Barbara Borzi**, **Roberto Nascimbene**, **Andrea Penna**, and **Massimiliano Stucchi**, while ReLUIS representatives are **Angelo Masi**, **Enrico Spacone**, **Antonio Santo**, **Maria Polese**, **Marco Di Ludovico**, **Luigi DiSarno**, **Luigi Sorrentino** and **George Balzopoulos**.

The reconnaissance mission is focused on four main themes:

1. Performance of new or retrofitted structures.
2. How lessons from the 2009 L'Aquila earthquake are informing emergency response and rebuilding efforts.
3. Observation of Italian approaches for detailed and systematic data collection techniques to inform (a) EERI's data collection approaches, (b) fragility development for the building typologies damaged by the earthquake, and (c) verification of virtual damage and loss maps from remote sensing data sources.
4. Performance of schools and their impacts on community resilience.

After its return from the field, the team will disseminate findings by producing a web-broadcasted reconnaissance briefing for the

membership. More information on the Amatrice earthquake, including data and photos from the reconnaissance team as they are gathered, can be found on the Amatrice Virtual Clearinghouse website: <http://www.eqclearinghouse.org/2016-08-24-italy/> 

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### ▶ GEER Reconnaissance in Italy

The [Geotechnical Extreme Events Reconnaissance \(GEER\) Association](#)  also mobilized a team to Italy to document perishable data from the earthquake sequence that began on August 24, 2016. The U.S. team worked closely with many Italian investigators in the areas of geotechnical engineering, geology, geomatics, and structural engineering to complete their work. Our thanks to GEER for sharing its findings and data with the EERI LFE team. The two groups are coordinating on next steps for research and reporting on the Central Italy earthquake.

A preliminary (version 1) report on the GEER team's findings can be found here:

[http://www.geerassociation.org/index.php/component/geer\\_reports/?view=geerreports&id=76](http://www.geerassociation.org/index.php/component/geer_reports/?view=geerreports&id=76) 

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## STUDENT CHAPTER OPPORTUNITY

### ▶ Request a Friedman Family Visiting Professional Lecture

EERI is pleased to announce the opening of the **Friedman Family Visiting Professionals Program** for the 2016-2017 academic year. With the generous support of an endowment from the Friedman Family, the program provides travel funding for expert professionals to visit your university and deliver a lecture that showcases their experiences in a professional career associated with earthquake engineering and earthquake risk reduction.

Student Chapters can choose from a list of 19 expert EERI professionals that span disciplines including seismology, geotechnical engineering, structural engineering, insurance, emergency management, and public policy. For a list of all professionals, visit: <https://www.eeri.org/projects/friedman-family-visiting-professionals-program/>

EERI Student Chapters are encouraged to complete the application form to request a visit from a Friedman Family Visiting Professional at <https://www.surveymonkey.com/r/friedman16-17> 

Rank your top three professionals and briefly describe the reason for your choices in 300 words or less. Review of Student Chapter requests will begin on **October 21, 2016**, and occur on a rolling basis until all travel funds are awarded. All chapters are encouraged to apply before this date for the best chance of being selected for the program. Depending on funding availability, approximately six-ten trips will be funded for visits between January and June 2017.

For more information about the Friedman Family Visiting Professionals program, visit: <https://www.eeri.org/projects/friedman-family-visiting-professionals-program/>

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## ANNOUNCEMENTS

### ▶ COSMOS Technical Session: Moving Toward Site-Specific Ground-Motion Hazard

The Consortium of Organization for Strong-Motion Observation Systems (COSMOS) will be holding its Annual Meeting and Technical Session at the Crowne Plaza Hotel San Francisco Airport in Burlingame, California, on **Friday, November 18, 2016.**



This year's Technical Session theme is "Moving Toward Site-Specific Ground-Motion Hazard." The morning session will provide presentations on COSMOS/USGS/CGS joint activities, the updated ANSS strategic plan, new available datasets from South America and PEER, important new changes to ASCE 7-16 requiring more site specific ground motions and new limitations on their development, updates on the Project 17 and the PEER PSHA Validation Project. The afternoon presentations will feature presentations on the PEER Directivity Project and recommendations on performing hazard analysis with directivity, use of datasets to constrain path effects, integrating ground motion recordings into Site-Specific Amplification functions, use of 3D simulations in developing design ground motion hazards, and trade-offs between Aleatory and Epistemic Uncertainty.

Registration fees are \$240 for COSMOS, PEER, and ATC members, and \$280 for non-members; this includes breakfast, lunch, and refreshments. There is also a special reduced student rate of \$60. This year, attendees will be able to earn 0.6 Continuing Education Credits (CEUs) or 6 Profession Development Hours (PDUs) by attending. Program details for the COSMOS Annual Meeting and Technical Session are available at the COSMOS website: <http://www.cosmos-eq.org/>

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### ▶ Call for Nominations: 2017 WSSPC Awards in Excellence

The Western States Seismic Policy Council (WSSPC) is accepting nominations for the 2017 WSSPC Awards in Excellence, Lifetime Achievement Award, and the WSSPC Leadership Award.



These annual awards honor exemplary programs, projects, and products that have significantly contributed to addressing earthquake risk reduction through new and creative approaches. Through these awards, WSSPC seeks to recognize the winners' demonstrated achievements in earthquake mitigation, preparedness, and response, and facilitate the transfer of those successful experiences to others.

Nomination forms are on the WSSPC website and the deadline for submission is December 30, 2016: <http://www.wsspc.org/awards/call-nominations/>

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### ▶ 10th Nuclear Plants Symposium, December 11-14, 2016

EERI is a cosponsor of the 10th Nuclear Plants Current Issues Symposium, "Assuring Safety against Hazards through Innovation & Cost Control" (NPCIS 10), to be held in Charlotte, North Carolina, **December 11-14, 2016.**

The symposium will present the latest advances, lessons learned, and actions toward assuring safety against natural hazards including floods, high winds, and seismic events. Part of the program will be a focus on flood and fire after seismic events, following recommendations made by the NRC's Near-Term Task Force in consultation with the industry after the 2011 Fukushima Daiichi event.



Topics included modern methods for probabilistic hazard analysis, fragility evaluation and risk assessment using experimental and real-life experience data, and traditional and high-performance computing.

For registration, sponsorship opportunities, and other details, visit the NPCIS 10 website: <https://www.ncsu.edu/mckimmon/cpe/opd/NPCIS/>

Direct further inquiries to Symposium Chairman **Ajaya Kumar Gupta** (M. EERI, 1976) at [Ajaya.Gupta@NCSU.edu](mailto:Ajaya.Gupta@NCSU.edu)

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## PUBLICATIONS

### ▶ Earthquake Spectra: Preprint Manuscripts

Three preprint manuscripts have been posted to the *Earthquake Spectra* website prior to formal publication. The papers to be published are:



- "Chile Strong Ground Motion Flatfile" by Nicolas Bastías and **Gonzalo A. Montalva** (M. EERI, 2009)
- "Seismic Fragility Analysis of the Smithsonian Institute Museum Support Center" by **Xin Chu** (M. EERI, 2013), **James M. Ricles** (M. EERI, 1995), and Shamim N. Pakzad
- "Seismic Vulnerability of Wine Barrel Stacks" by Gabriel Candia, Miguel Jaimes, Cesar Arredondo, **Juan Carlos de la Llera** (M. EERI, 1997), and Philomène Favier

To read all current preprint manuscripts posted, visit [Earthquake Spectra preprints](#).

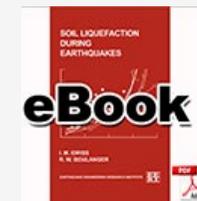
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### ▶ Soil Liquefaction During Earthquakes E-Book

Don't forget the digital downloads available in the [EERI Knowledge Center and Online Store](#). EERI Members receive a 15% discount on products at checkout.

#### **Soil Liquefaction During Earthquakes E-Book**

I. M. Idriss and R. W. Boulanger's 237-page monograph updates a subject area covered in the 1982 classic text used around the world, *Ground Motions and Soil Liquefaction During Earthquakes*, by H. Bolton Seed and I.M. Idriss. The new publication fills a need for a thorough synthesis of progress in the study of liquefaction since 1982, and includes



- Fundamentals of liquefaction behavior: a framework for a common understanding of the development and limitations of various engineering analytical procedures.
- Liquefaction triggering analysis: methods for evaluating the potential for liquefaction triggering.
- Consequences and mitigation of liquefaction: examples of lateral spreading and post-liquefaction settlement analyses, the use of factors of safety in engineering practice, mitigation strategies, and methods for ground improvement.
- Cyclic softening of saturated clays: engineering procedures for evaluating the potential performance of cohesive fine-grained soils.

Read more and purchase at <https://www.eeri.org/products-page/monographs/soil-liquefaction-during-earthquakes-ebook-3/>

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## CALENDAR

Follow these steps to add EERI Calendar to your own Google calendar.

1. Open [Google Calendar](#)
2. On the left, above "My Calendars," click Add + and then **From URL**.
3. Enter the EERI calendar's address in the field provided. EERI Calendar ics link  
[https://calendar.google.com/calendar/ical/eeri.org\\_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics](https://calendar.google.com/calendar/ical/eeri.org_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics)
4. Click **Add Calendar**. The calendar will appear on the left side under "Other calendars."

Monday, December 09, 2019 - December 13

### **AGU 2019 Fall Meeting**

9-13 December 2019 San Francisco, California

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Tuesday, March 03, 2020 - March 06

### **EERI 2020 Annual Meeting/Natl EQ Conference**

National Earthquake Conference & 72nd EERI Annual Meeting

March 3 - 6, 2020

Sheraton San Diego Hotel & Marina

San Diego, California

[website](#)

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Wednesday, March 04, 2020 - March 06

### **2020 RBDCC**

5th Residential Building Design & Construction Conference (RBDCC)

Hosted by The Pennsylvania Housing Research Center

March 4-6, 2020

Penn Stater Conference Center

State College, PA.

[website](#)

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Monday, April 27, 2020 - April 30

**SSA 2020 Annual Meeting**

SSA 2020 Annual Meeting

27-30 April 2020 — Albuquerque, New Mexico

The 2020 Annual Meeting will be held in Albuquerque, New Mexico.

[Check back later for more information.](#)

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Monday, September 14, 2020 - September 18

**17th WCEE**

The 17th WCEE will be hosted in Sendai, Japan, from September 14th to 18th 2020. Check <http://www.iaee.or.jp/> for more information.

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