SEISMIC

Getting Started Guide

Welcome! This guide is to help you learn how to work within the Sloan Equity and Inclusion in STEM Introductory Courses collaboration (SEISMIC). Participants who have not attended a SEISMIC Summer Meeting will find this particularly helpful in explaining many of the details of the project. We encourage you to share this guide with anyone new to SEISMIC or who has questions about how they can get involved. If you find there is information missing from this guide, please let our Project Manager know at nitaked@umich.edu. We want this guide to be as helpful as possible.

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If you have already joined a Working Group or are involved with a SEISMIC Project...

JOIN THE OPEN SCIENCE FRAMEWORK (OSF)

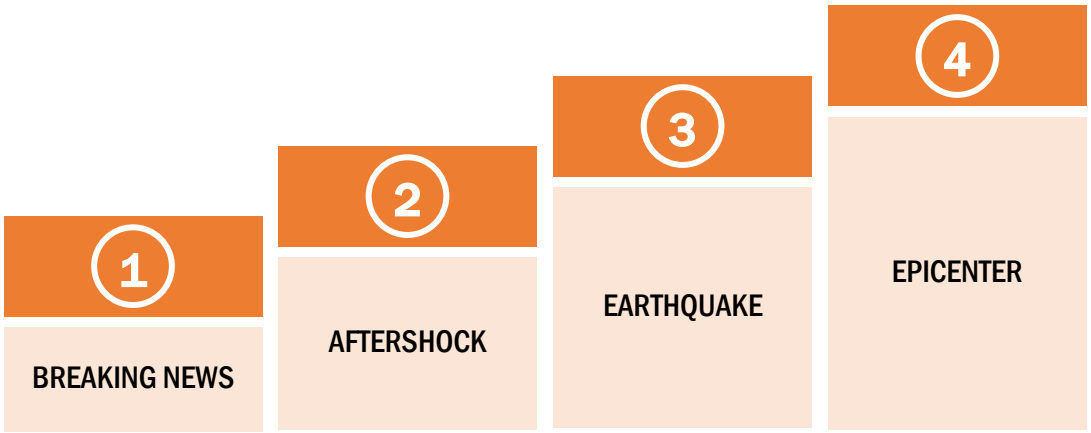
We use OSF for all internal information and file sharing. To participate in SEISMIC Working Groups or projects, you must sign up for a (free) OSF account and request access to our SEISMIC Project.

https://osf.io/6ed72/?view_only=f31a9e5eb0454fe584dc0a8c86cbb149

LEVELS OF PARTICIPATION

What are the different ways I can be involved?

We start with this section to provide context for everything else in the guide. Once you know at what level you want to be involved in SEISMIC, you can learn the expectations for that level, what support is available to you, and what activities you can participate in. Our expectation for any involvement in SEISMIC is that you are respectful and collaborative. Note that each level builds off of each other, so if you are at Level 4, you have access to and should already have joined all the options in the earlier levels.



Level 1: Breaking News

At this level, you are curious to know what is happening with SEISMIC, but do not wish to be directly involved. You can sign up to receive our monthly **newsletters**[1] and follow us on **Twitter**[2] to stay updated. Our **website**[3] is a good resource for learning about our current projects.

1 http://eepurl.com/gffpub
2 @SEISMIC_project
3 https://sites.google.com/umich.edu/seismic/working-groups/key-projects

Level 2: Aftershock

You are interested in the activities of SEISMIC and also affiliated with one of our SEISMIC institutions[4]. You should **contact your Local PI**[5] so you are made aware of any SEISMIC events happening on your campus. You are able to attend SEISMIC speaker visits on your campus as part of the Speaker Exchange Program, could help coordinate the speaker visits, and can travel to other institutions as a speaker. If you are interested in traveling to other SEISMIC institutions to give talks, let your Local PI know so you will be added to the list of available speakers.

Level 3: Earthquake

Join this level if you want to influence the direction of the Working Groups. You can read about our current Working Groups on our website and **fill out this form**[6] to indicate your interest in joining one or more of them. You will then be contacted by the SEISMIC Project Manager with next steps. As a **Working Group member**, **you are expected to attend the majority of Working Group meetings set by your co-chairs**. You are encouraged to attend the SEISMIC Summer Meetings, present the progress of your Working Group at conferences and through speaker visits, write grant proposals, and contribute to the vision and goals of the Working Group. Work with your co-chairs to decide your involvement in the Working Group. If you are interested in being a Working Group co-chair, contact the Collaboration Council. Contact details are listed in the **Contact section** of this guide.

Level 4: Epicenter

At this level, you want to be as involved as possible. All SEISMIC projects are housed within one of the Working Groups. You can read about our current projects on our website and **fill out this form**[7] to join one or more project teams. You will then be contacted by the SEISMIC Project Manager with next steps. As a **project team member**, you share responsibility for the progress of the project. **You are expected to attend the majority of project meetings set by your project leads and contribute to the efforts of the project.** This can be through opening up your classroom to a study, running analysis code, planning the experimental design, writing up results, and many other activities. You are encouraged to write grant proposals as needed to fund the project. To volunteer as a project lead, contact the Working Group co-chairs affiliated with the project, listed in the **Contact section** of this guide.

4 Arizona State University, Indiana University, Michigan State University, Purdue University, University of California Davis, University of California Irvine, University of California Santa Barbara, University of Michigan, University of Minnesota, University of Pittsburgh

5 https://sites.google.com/umich.edu/seismic/about/member-institutions

6 https://www.google.com/url?q=https%3A%2F%2Fgoogle.us20.list-manage.com%2Ftrack%2Fclick%3Fu%3D029c6369a2273a6d70d18d21c%26id%3D021a64363b%26e%3D73587f26c1&sa=D&sntz=1&usg=AFQjCNHIgK27uDRfmsJ5DTRxYBwKxDnX4w

7 https://docs.google.com/forms/d/e/1FAIpQLScs7AvcpFMw_rfk2kbgk4YNNvyatWGtceivjnOIhoa8jeCcZQ/viewform?usp=sf_link

WORKING IN SEISMIC

This section is for Level 3 and 4 participants.

Now that I'm involved, how do I work with other collaborators?

Communication

We use email for most communication. We have a collaboration-wide mailing list that is used exclusively to send out monthly newsletters. Each Working Group has an email address that can be used to communicate with all the participants in the Working Group. We also have an email address to contact the Collaboration Council, and individual emails for different collaboration leaders. See the **Contact section** for the full list.

In addition, we have set up a Slack workspace for easy communication between collaborators. This is often most helpful for asking quick questions to an individual and for discussions within a project team. Slack's advantage over email becomes apparent when handling multiple ongoing topics of conversation. You can also easily search messages in Slack and see when someone is active on Slack or not. To join our workspace, use this **link**[8].

We are working to set up an email management system so we can archive email threads. This would be especially helpful so members that join a project later can review earlier email conversations. We will update this section once the email management system is ready to use.

All virtual meetings scheduled by the SEISMIC Project Manager will be hosted through BlueJeans. You do not need to download BlueJeans or set up an account to participate in these meetings. However, downloading and setting up an account does simplify joining meetings. In BlueJeans you can share your audio, video, and/or screen. You can call in from your phone, computer, or room system. There is an option to record the meetings as well. For help with BlueJeans, visit the **BlueJeans support page**[9].

8 https://join.slack.com/t/seismic-team/shared_invite/enQtNzE5ODcyNDY3ODI5LTg0N2NkMjQ4MTYyMjMxOGMxNWYwMzk4ZTA3MTUzYjEyMDJjOTgxY2E3ZTI1ZGU1MzM3MWQ1MmM5NjRkMzc4YzY

9 https://support.bluejeans.com/s/

File Storage and Information Sharing

"The Open Science Framework (OSF) is a tool that promotes open, centralized workflows by enabling capture of different aspects and products of the research lifecycle, including developing a research idea, designing a study, storing and analyzing collected data, and writing and publishing reports or papers. It is developed and maintained by the Center for Open Science (COS), a nonprofit organization founded in 2013 that conducts research into scientific practice, builds and supports scientific research communities, and develops research tools and infrastructure to enable managing and archiving research[10]."

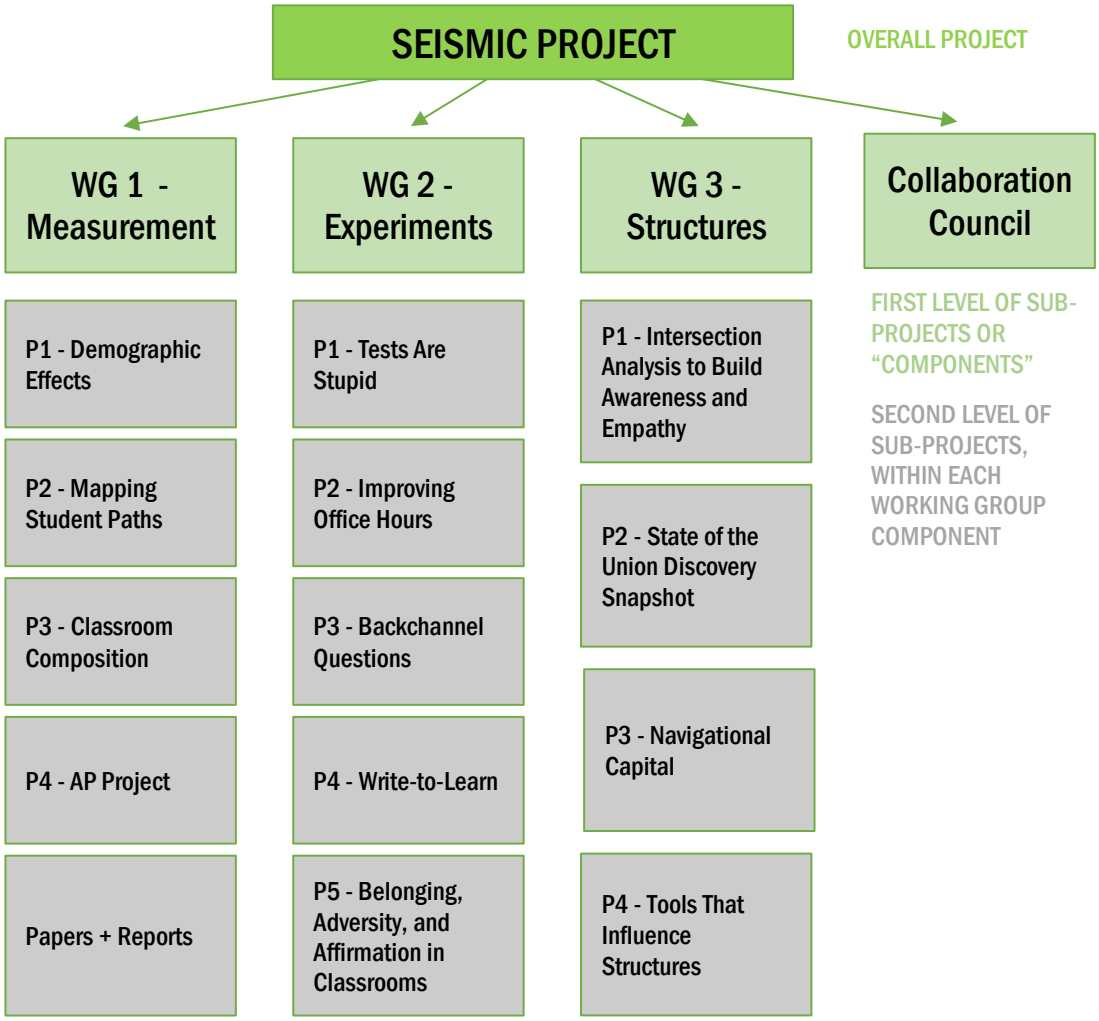
We use OSF to manage internal information. There is a central collaboration page called **SEISMIC Project** intended to share information with Working Group members and Collaboration Council members. **You must request access to this project through our SEISMIC Project OSF page**[11] **to view the full details and participate.**

There are four main pieces to any OSF page. At the top is the list of Contributors. These are all the people who have edit access to the component. Below the Contributors and to the right is the Components section. The structure of OSF allows for multiple sub-projects, called **Components**. On the next page is is a figure detailing all the current components of our SEISMIC Project. You may not be able to view the Collaboration Council component in OSF if you are not on the Collaboration Council.

[10] Foster, E. D., & Deardorff, A. (2017). Open Science Framework (OSF). Journal of the Medical Library Association : JMLA, 105(2), 203–206. doi:10.5195/jmla.2017.88

[11] https://osf.io/6ed72/?view_only=f31a9e5eb0454fe584dc0a8c86cbb149

Organization of SEISMIC Project OSF Site *(as of Sept. 16, 2019)*



Below the Contributors and to the left is the Wiki. The Wiki is a place where you can write notes. You can create multiple wikis for any OSF page. Some common Wikis are "Home," with information on the current project, and "Meeting Notes," with notes and next steps from past meetings. Anyone with edit access is able to edit Wikis. We ask that you maintain the structure in place. So, if you want to write something for anyone in the collaboration to see, put it in a SEISMIC Project Wiki page. If you want to write something specific to a project team in a Working Group, write it in a Wiki page in that project's OSF.

The fourth section is Files, located below the Wiki. This is where we store resources and more permanent information. OSF allows you to link your Google Drive, Box, GitHub, and other accounts to the Files section. This means you do not have to download everything from your Google Drive that you want to share and upload it to the OSF Files section. Instead, you can link your account and the files will automatically show up in OSF. **Watch this video[12] for a quick tutorial for using OSF.**

12 https://drive.google.com/file/d/1fSqDBppVlnmFkVm8KCW3hMp-KE1oL97n/view?usp=sharing

Helpful Information in OSF

In the SEISMIC Project OSF files section there are various resources available to the collaboration.

- **SEISMIC slides** – standard SEISMIC slides for you to use in presentations when you want to describe SEISMIC. There is a one-slide version and five-slide version.
- **Official Acknowledgment** – Use this language to officially acknowledge SEISMIC. This is especially relevant for when you write papers as part of the collaboration.
- **Speaker List** – List of available SEISMIC speakers. Use this list to invite speakers to your campus for the Speaker Exchange Program.

Support from SEISMIC Project Team

As a SEISMIC participant, you have access to the SEISMIC Project Team for organizing, visioning, event planning, and evaluation support. The Project Manager can assist you with scheduling project meetings, capturing meeting notes, sending out agendas, and other tasks to help your SEISMIC work move more smoothly. This person is your main contact for any SEISMIC questions or concerns you have. The Project Director is available for questions and discussions regarding the future of the collaboration and collaboration-wide opportunities. You can also raise these topics with your Local PI, who can bring them up at CoCo meetings. We have partnered with the University of Michigan Center for Research on Learning and Teaching (CRLT) to provide event support for SEISMIC events. If your institutional team volunteers to host a SEISMIC Summer Meeting, The CRLT team will provide some event support in addition to what your local event team can provide. We have also partnered with the University of Michigan Center for Education Design, Evaluation, and Research (CEDER) to evaluate the activities, structures, and outcomes of SEISMIC. You are welcome to contact the CEDER team with questions around education design and evaluation. Contact information for all of the SEISMIC Project Team is listed in the **Contact section**.

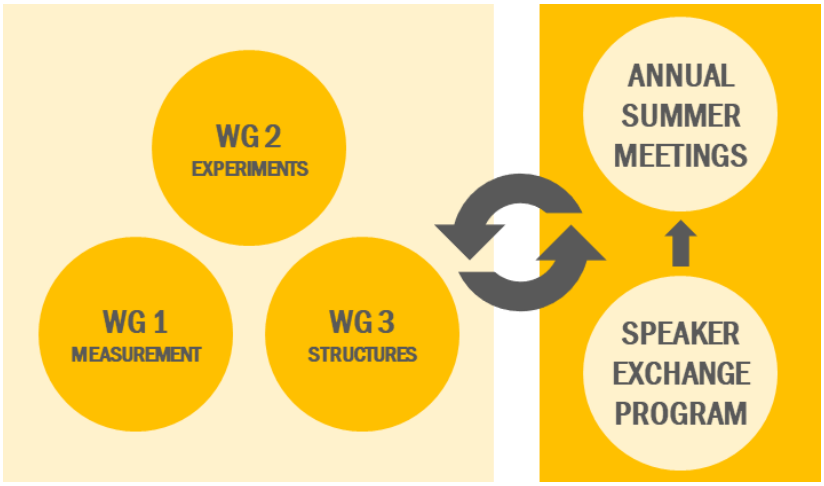
Graduate Student Funding

Each institution also has access to $5,000 each year to fund graduate student travel. This funding is intended to facilitate travel to SEISMIC events for graduate students working in the collaboration. Contact your Local PI if you are interested in using this funding. The funding will roll over each year, but we encourage you to take advantage of it early.

MAIN ACTIVITIES

What does this collaboration do?

SEISMIC has three main activities to accelerate research, build community, and enhance the spread of ideas throughout the collaboration.



Working Groups

Similar to other large scientific collaborations, SEISMIC uses a Working Group structure to conduct work. Our Working Groups focus on three themes of work. The first, **Measurement**, uses parallel data analyses to understand equity and inclusion in STEM across our SEISMIC institutions. The second, **Experiments**, runs interventions and studies in classrooms and on instructors to explore different factors related to equity and inclusion in the classroom. The third, **Structures**, uses the expertise at each institution to study reform efforts across SEISMIC and develop knowledge on what SEISMIC participants can do to make effective change. Working Groups have participants from multiple institutions and run experiments and analyses that can be conducted across all SEISMIC institutions. Their work is divided into key projects and additional projects. Working Group members join project teams so they can work on specific studies. Key projects are projects that the Working Group commits to moving forward within the year and often directly impact all SEISMIC institutions. Additional projects are proposed by Working Group members and may be relevant to only a subset of institutions.

Annual Summer Meetings

SEISMIC hosts Summer Meetings each year for collaborators to meet and share progress. These multi-day meetings also provide an opportunity for Working Groups to meet in person and develop goals and plans for the coming year. Sessions at the Summer Meetings include Working Group plenary presentations, keynotes, poster sessions, a CoCo panel, and working time for the Working Groups. Participants find the Summer Meeting helpful for making new connections with people at different institutions, learning new reform strategies, brainstorming new projects, and promoting a sense of community within SEISMIC. These meetings are intended for Level 3 and 4 participants. If you are interested in attending the upcoming Summer Meeting, contact your Local PI.

Speaker Exchange Program

All SEISMIC institutions have committed to hosting 6 or more SEISMIC-related speakers each year. This activity is meant to help participants continue conversations and work between Summer Meetings, provide opportunities for new collaborations, and help institutions gain local support for their work by having outside voices corroborate it. To organize your institution's Speaker program, we suggest you engage with existing speaker series on your campus. Invite SEISMIC speakers as part of these existing series, rather than creating a new one and needing additional funding. You can find the list of available SEISMIC speakers **here**[13].

13 https://osf.io/gkbw9/?view_only=f31a9e5eb0454fe584dc0a8c86cbb149

OUR BIG PICTURE

How did SEISMIC start and what is it trying to achieve?

Origin Story

Earlier efforts by some of our now partner institutions played a large role in the development of the SEISMIC project. In 2014, a handful of Big 10 institutions came together to conduct parallel data analyses in intro STEM courses. The question was simple, at first. A physics professor at the University of Michigan found gendered performance differences in his class and he wanted to know, is this just a problem in physics? From there he got access to institutional data[14] for other STEM classes at UM and found his answer - no, this is a problem in other STEM classes as well. The next question was whether this was just a STEM problem (it was), and from there, whether it was just a UM problem (it wasn't). This professor teamed up with people at other Big 10 universities, including now SEISMIC institutions Michigan State University, University of Minnesota, and Indiana University, and found a pattern of gendered performance differences in STEM. This project allowed people to see how coming together across institutions around data can be valuable[15]. A few years later, that UM physics professor, Tim McKay, proposed the SEISMIC project.[16]

[14] More information on the creation of the Learning Analytics Architecture (LARC) dataset at the University of Michigan:
Lonn, S., Koester, B. P. (2019). Rearchitecting data for researchers: A collaborative model for enabling institutional learning analytics in higher education. Journal of Learning Analytics, 2019(2), 107-119.
[15] Matz, R. L., Koester, B. P., Fiorini, S., Grom, G., Shepard, L., Stangor, C. G., ... & McKay, T. A. (2017). Patterns of gendered performance differences in large introductory courses at five research universities. AERA Open, 3(4), 2332858417743754.
[16] More information on the University of Michigan process toward learning analytics work:
Lonn, S., McKay, T. A., & Teasley, S. D. (2017). Cultivating institutional capacities for learning analytics. New Directions for Higher Education, 2017(179), 53-63.

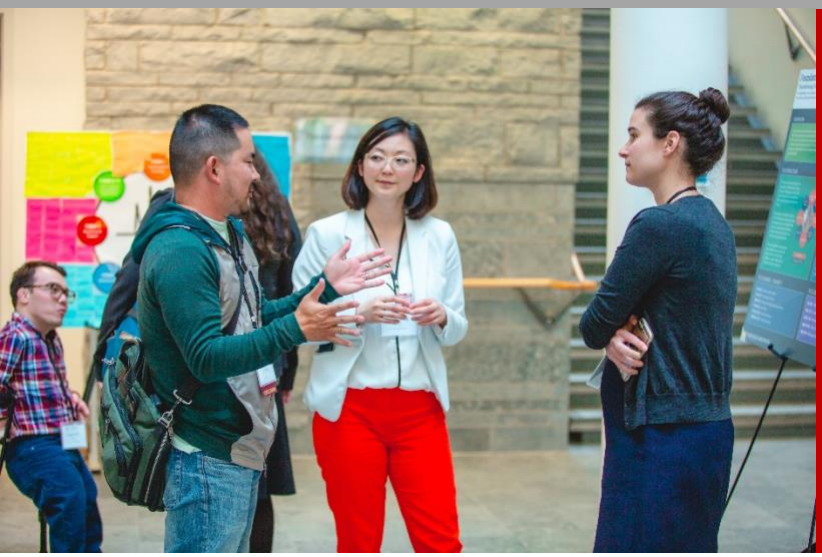
Vision and Goals

SEISMIC aims to set a new national standard for assessing the quality of foundational STEM courses, where equity and inclusion are metrics for success. We will improve equity and inclusion in these courses across our collaboration of institutions enrolling more than 60,000 new students per year. Finally, we will prompt a greater focus for campus leadership on equity and inclusion in STEM courses.

To do this, we have come together as a 10-institution collaboration to conduct parallel data analyses, run coordinated experiments, and share insights from reform efforts already in place on our campuses. During the three years of our initial funding, we will develop descriptions of equity and inclusion metrics, run interventions in over 50 courses, exchange over 180 speakers between our institutions, run 3 collaboration-wide Summer Meetings, provide $150,000 to graduate students to support their involvement in this collaboration, and share our research results through numerous conference presentations and peer-reviewed research papers.

Our Funder

Funding for the SEISMIC project has been provided by the Alfred P. Sloan Foundation and the Participating Institutions. The SEISMIC website is **https://sites.google.com/umich.edu/seismic**. SEISMIC is managed at the University of Michigan for the Participating Institutions, which include Arizona State University, Indiana University, Michigan State University, Purdue University, University of California Davis, University of California Irvine, University of California Santa Barbara, University of Michigan, University of Minnesota, and University of Pittsburgh.



CONTACT US

How can I get in touch with collaboration leaders?

Organizational Team – This team decides on the big picture goals of SEISMIC, applies for funding for the collaboration, runs the annual Summer Meetings, evaluates the progress of SEISMIC, and generally keeps the collaboration organized.

SEISMIC Project Team		
PROJECT DIRECTOR	Tim McKay	tamckay@umich.edu
PROJECT MANAGER	Nita Kedharnath	nitaked@umich.edu
EVALUATION TEAM (CEDER)	Victoria Bigelow Jennifer R. Lyons	vbigelow@umich.edu jrnulty@umich.edu
EVENT TEAM (CRLT)	LaVonne Maxwell	yuillel@umich.edu
Collaboration Council		
COLLABORATION COUNCIL		seismic.cc@umich.edu
Local PIs		
ARIZONA STATE UNIVERSITY	Sara Brownell	sbrownel@asu.edu
INDIANA UNIVERSITY	Dennis Groth	dgroth@indiana.edu
MICHIGAN STATE UNIVERSITY	Becky Matz	matz@msu.edu
PURDUE UNIVERSITY	Chantal Levesque-Bristol	cbristol@purdue.edu
UNIVERSITY OF CALIFORNIA DAVIS	Marco Molinaro	mmolinaro@ucdavis.edu
UNIVERSITY OF CALIFORNIA IRVINE	Brian Sato	bsato@uci.edu

UNIVERSITY OF CALIFORNIA SANTA BARBARA	Linda Adler-Kassner	ladler@ucsb.edu
UNIVERSITY OF MICHIGAN	Tim McKay	tamckay@umich.edu
UNIVERSITY OF MINNESOTA	Sehoya Cotner	sehoya@umn.edu
UNIVERSITY OF PITTSBURGH	Chandralekha Singh	clsingh@pitt.edu
ADVISORY COUNCIL	Nancy Boyer Tabbye Chavous Noah Finkelstein Kelly Mack Emily Miller Valerie Otero Kathy Takayama	

Working Team – This team conducts research and works to accomplish the goals of SEISMIC. It determines the **projects**[17] SEISMIC will complete and team members travel to other SEISMIC institutions to speak on the work they are doing as part of the Speaker Exchange Program.

Working Group 1 (Measurement)		
If you are in Working Group 1 and would like to contact fellow participants, use seismic.WG1@umich.edu		
CO-CHAIRS	Stefano Fiorini Becky Matz	sfiorini@indiana.edu matz@msu.edu
PROJECT 1 LEADS	Ben Koester Chantal Levesque-Bristol	bkoester@umich.edu cbristol@purdue.edu
PROJECT 2 LEADS	Juniar Lucien Meryl Motika	lucien@umich.edu mimotika@ucdavis.edu
PROJECT 3 LEAD	Heather Rypkema	hrypkema@umich.edu
PROJECT 4 LEADS	Christian Fischer Christian Schunn	chrisfi@uci.edu schunn@pitt.edu

17 https://sites.google.com/umich.edu/seismic/working-groups/key-projects

Working Group 2 (Experiments)		
If you are in Working Group 2 and would like to contact fellow participants, use seismic.WG2@umich.edu		
CO-CHAIRS	Kevin Binning Sehoya Cotner Sabrina Solanki	kbinning@pitt.edu sehoya@umn.edu ssolanki@uci.edu
PROJECT 1 LEADS	JD Walker Sehoya Cotner Allison Godwin	jdwalker@umn.edu sehoya@umn.edu godwina@purdue.edu
PROJECT 2 LEADS	Eduardo (Lalo) Gonzalez Sabrina Solanki	laloglz@ucsb.edu ssolanki@uci.edu
PROJECT 3 LEAD	Perry Samson	samson@umich.edu
PROJECT 4 LEADS	Vanessa Woods Lizzy Wilbanks	vewoods@ucsb.edu ewilbanks@ucsb.edu
PROJECT 5 LEADS	Kevin Binning Allison Godwin Susan Cheng Logan Gin	kbinning@pitt.edu godwina@purdue.edu chengs@umich.edu lgin2@asu.edu
Working Group 3 (Structures)		
If you are in Working Group 3 and would like to contact fellow participants, use seismic.WG3@umich.edu		
PARTICIPANTS		seismic.WG3@umich.edu
CO-CHAIRS	Marco Molinaro Briandy Walden	mmolinaro@ucdavis.edu bwalden@uci.edu
PROJECT 1 LEAD	Marco Molinaro	mmolinaro@ucdavis.edu
PROJECT 2 LEAD	Briandy Walden	bwalden@uci.edu
PROJECT 3 LEAD	Linda Adler-Kassner	ladler@ucsb.edu
PROJECT 4 LEAD	Tim McKay	tamckay@umich.edu