

WORKSHOP ANNOUNCEMENT & CALL FOR PRESENTATIONS

Workshop on Seismic Input Motion Development for Analysis and Design of Nuclear Installations

Date(s): May 11-13, 2026

Location: Headquarters of U.S. Nuclear Regulatory Commission (NRC)

Hosted by U.S. NRC

Organized by OECD/NEA/CSNI/WGIAGE¹ Seismic Engineering Subgroup

We are excited to announce the Seismic Input Motion Development (SIMD) workshop for analysis and design of nuclear installations, a three day workshop dedicated to addressing two converging technical views: (1) the long-standing recognition within the WGIAGE Seismic Engineering Subgroup that peak ground accelerations and response spectra (RS) are incomplete indicators of the damaging capacity of seismic motions, and therefore are not well-suited for defining the seismic design input motions, and (2) the recent NRC guidance update and research findings indicating that power spectral density (PSD) functions are necessary for design RS to adequately represent the intended input motions for complex systems like nuclear power plants.

In the wake of a well-established WGIAGE policy of bringing together the seismological and structural engineering communities, this workshop aims to share the current state of practice in SIMD, raise awareness of the need for PSD checks in the varying SIMD practices, discuss perspectives and recommendations on integrating RS-matching with PSD checks, and explore future activities to complement RS with PSD or other best practices in all aspects of seismic engineering. Through a series of presentations and panel discussions, participants will gain valuable insights into the technical rationale on PSD checks and important intensity measures, and how they affect various types of seismic analyses and seismic risk assessments. The workshop will promote international uniformity and efficiency, particularly in supporting advanced reactor designs for which licenses may be pursued in multiple countries. Many of these designs involve innovative systems such as seismic isolators, graphite fuel pebbles, and water pools and other fluid systems that behave in the nonlinear regime during strong earthquakes. This workshop will also serve as an avenue for knowledge transfer to the next generation of engineers, who are expected to use advanced analyses and computational tools for new reactor designs.

The workshop will follow the CSNI practice to conclude with a series of recommendations on SIMD for improvement of engineering practices in OECD/NEA member states (MS) or other countries.

CALL FOR PRESENTATIONS

We invite submissions for presentations that align with the workshop's theme. This is an excellent opportunity to share your research findings and practical experiences and engage with a diverse audience from the industry, research institutes, academia, and regulators. Presentation materials should be suitable for public release.

¹ The Organization for Economic Co-operation and Development (OECD)/ Nuclear Energy Agency (NEA)/Committee on the Safety of Nuclear Installations (CSNI)/Working Group for Integrity and Ageing of Components and Structures (WGIAGE)

We particularly welcome submissions on the following topics, though other SIMD-related topics will also be considered:

- **Selection and Generation of Input Motions/Time Histories for Analysis and Design of Nuclear Installations [lightning talks]**
This topic focuses on the practices and lessons learned on how to select or generate input time histories for seismic analysis, design, and assessment of nuclear installations. The goal is to cover major types of methods, including linear scaling, frequency domain or time domain RS matching, wavelet transformation, etc., so that participants unfamiliar with these practices can establish an adequate understanding to participate in an effective dialogue during the rest of the workshop.
- **The Necessity of PSD Checks in Time History Acceptance Criteria**
The goal of this topic is to present the recent update in NRC's Standard Review Plan (SRP) Section 3.7.1 on time history acceptance criteria and the associated technical rationale for the necessity of PSD checks for one set or multiple sets of time histories. MS can also present their practices in the general area of using PSD or similar measures, in addition to RS, in their input motion development.
- **The Necessity of Considering Additional Intensity Measures (IM)**
The goal of this topic is for MS to share their practice and lessons learned regarding the need for other intensity measures, e.g., strong motion duration, Arias Intensity (I_A), cumulative absolute velocity (CAV), and their relationship with PSD and RS. The key learning outcome is to get the whole picture of the required steps and checks in selection or generation of time histories, as inputs for linear and non-linear seismic analyses.
- **Examples of Linear or Nonlinear Time History Analysis**
The goal of this topic is for MS to share their experience and feedback on the use of time histories for linear and non-linear time history analyses, including seismic design of concrete wall structures and equipment and soil-structure-interaction analyses, and how uncertainties, biases, and power sufficiency are addressed. This topic may include the use of any necessary additional IMs and possibly any considerations regarding the number of time histories to be used to appropriately characterize the variability of the expected output parameters.
- **Random Vibration Theory (RVT), Response Spectrum Analysis (RSA), and PSD Analysis**
The goal of this topic is for MS to share their applications of RVT, RSA, or PSD for seismic linear analysis and seismic design. This topic also intends to show PSD or Fourier Amplitude Spectra (FAS) are explicitly or implicitly applied in the use of RS and how PSD may be used directly and conveniently in seismic design.
- **Seismic Fragility Analysis and Seismic Probabilistic Risk/Safety Assessment**
The goal of this topic is for MS to share their practice and lessons learned on the use of time histories or RS in seismic fragility analysis and seismic probabilistic risk/safety analysis. This session is also to show how PSD-based time histories can reduce uncertainties in seismic fragility analysis.
- **Ground Motion (GM) Models and Physics-Based GM Simulations used in Seismic Hazard Analysis**
The goal of this topic is for MS to share the state of practice in using PSD/FAS and other intensity measures in the development of ground motion models and probabilistic seismic hazard analysis. The focus is to explore what seismological parameters (e.g., PSD and any other IMs such as strong motion duration, I_A , CAV ...) are a necessary minimal set to provide a robust description of the intended design or assessment ground motion to interface with engineering, considering that response spectrum is an incomplete indicator.

Submission Guidelines:

- **Abstracts:** Submit an abstract of no more than 300 words. The abstract should clearly outline your presentation's objectives, methodology (if applicable), key findings/insights, and conclusions.
- **Keywords:** Please provide 3-5 keywords that best describe your presentation.
- **Presenter Information:** Include the full name, affiliation, and contact email of all presenters.
- **Presentation Format:** Presentations will be 15 to 20-minute talks followed by 5 minutes for Q&A, or short lightning talks (10 minutes).
- **Executive summary:** An executive summary, with a maximum length of 2 pages, will be required to be submitted with the slides after notification of acceptance. The executive summary should include the author's main recommendations and be suitable for public release as part of the presentation materials and workshop proceedings. The executive summary should also include any references (e.g., journal articles or conference papers) that may support the author's recommendations.

Important Dates:

- **Abstract Submission Deadline:** October 30, 2025 (Closed)
- **Extended Abstract Submission Deadline:** ~~November 30, 2025~~, December 14, 2025(Closed)
- **Notification of Acceptance:** ~~December 17, 2025~~, January 19, 2026 (has been sent to all authors)
- **Workshop Registration Deadline:** ~~January 31, 2026~~, **March 6, 2026**

How to Submit:

Please email your abstract(s) to Jinsuo.nie@nrc.gov, emmanuel.viallet@edf.fr, and Keiko.CHITOSE@oecd-nea.org. (A SharePoint site from NEA will be provided for slides/executive summary submission for the accepted abstracts.)

CONTACT INFORMATION

For any inquiries regarding the workshop, please contact: Jinsuo.Nie@nrc.gov, Laurel.Bauer@nrc.gov, and Keiko.CHITOSE@oecd-nea.org.

We look forward to your participation and a productive workshop!

Sincerely,

The Organizing Committee of May 2026 SIMD Workshop for Analysis and Design of Nuclear Installations

