U.S. DEPARTMENT OF ENERGY | Office of NUCLEAR ENERGY

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Nuclear Materials Discovery and Qualification Initiative

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Nuclear Materials Discovery and Qualification Initiative (NMDQi)

- **Mission:** Provide access to cutting-edge tools and knowledge to shorten the time span between concept and material deployment for advanced nuclear reactor design

- **Vision:** Qualification of new materials designed for use in advanced reactors in a single development cycle

NMDQi takes a Grand Challenge approach to accelerate development and qualification of new nuclear materials and fuels for future advanced reactor technologies (Materials Genome Initiative for nuclear materials)

NMDQi R&D NE-4 FOA Technical Focus Areas

The NMDQi program seeks proposals:

- Develop data analytics frameworks that couple available datasets with modeling tools to predict properties for qualification of classes of materials.
- Focus on predicting structure-property relationships via the analysis of representative volumes of material at the microstructure level and present well-documented, demonstrated methodologies to calculate macroscopic quantities of interest.
- Areas of interest include materials for core, cladding, structural materials and fuels for advanced reactors.
- Areas of non-interest include well-established atomistic processes, e.g., for diffusion coefficients and pathways.

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