Preparing a Competitive NSF Proposal

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NHERI Lehigh EF

Outline

- Funding Opportunities
- Components of a Competitive NSF Proposal
- NHERI Lehigh EF Resources
- NSF Resources

Opportunities for Utilization of NHERI Lehigh

- NHERI Lehigh EF is available for utilization for projects funded through both public and private sources
  - NSF-funded projects that utilize NHERI Lehigh EF have specific costs that qualify for funding through one of the following sources:
    - NHERI Lehigh Operations and Maintenance budget
    - NSF-funded research project
  - Projects funded by all non-NSF sources are responsible for all costs associated with project budget

Opportunities for Utilization of NHERI Lehigh

- Upcoming funding opportunities through NSF:
  - Engineering for Civil Infrastructure (ECI) – Solicitation NSF 17-073Y
    - Full Proposal Window: January 10, 2018 – January 24, 2018
    - ECI program represents a new and integrated vision for fundamental research to underpin transformative innovations for the built environment that are resilient, economical, and adaptable to enhance national prosperity and societal benefits.
    - ECI program also does not support research on:
      - hazard characterization for and hazard mitigation of the impact of explosions, fire, blast loading, flooding,
      - solar wind and storms on civil infrastructure;
      - sensor and measurement technologies;
      - field instrumentation and monitoring;
      - induced seismicity;
      - construction safety.
    - $1M good upper bound budget.

Opportunities for Utilization of NHERI Lehigh

- Upcoming funding opportunities through NSF:
  - Leading Engineering for America's Prosperity, Health, and Infrastructure (LEAP HI) – Solicitation NSF 17-602
    - Letter of Intent: Due December 15, 2017
    - Full Proposal Window: February 5, 2018 – February 20, 2018
    - LEAP HI proposals confront engineering problems that are too complex to yield to the efforts of a single investigator — problems that require sustained and coordinated effort from interdisciplinary research teams, with goals that are not achievable through a series of smaller, short-term projects (i.e., significant interdisciplinary research effort).
    - LEAP HI supports fundamental research projects involving collaborating investigators, of duration up to five years, with total budget between $1 million and $2 million.

Components of a Competitive NSF Proposal

1. Project Summary
   - Overview – Related to proposed research; should present clearly and concisely: existing knowledge gaps; impact of these knowledge gaps on society; proposed research plan to close knowledge gaps.
   - Intellectual Merit – Knowledge that will be advanced; technical milestones to be achieved.
   - Broader Gaps – Outcomes; how research will transform the field; data products and computational models/tools developed; training of diverse group of graduate students and any ECO activities.

Components of a Competitive NSF Proposal

2. Research Vision
   - Problem statement – existing knowledge gaps; impact of these knowledge gaps on society;
   - Research needs, opportunities and impact
   - Goals and outcomes of proposed research
   - Overview of the major activities of proposed research
   - Rationale for NHERI EF usage
   - Overview of scope of research
   - Summary of research technical objectives
3. Project Team
4. Results from Prior NSF Support
5. Background
   - Background related to main technical aspects of proposed research
   - Relationship to current practice, codes
   - Prior relevant research

Components of a Competitive NSF Proposal

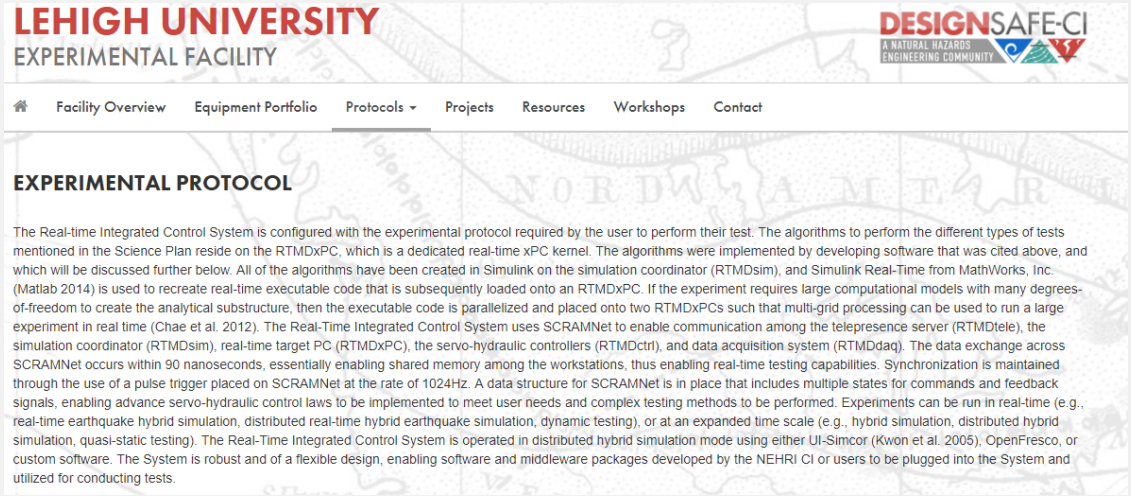
6. Primary Research Activities
   - Detailed discussion of research activities
   - Use of tables and figures
7. Research Schedule
8. Broader Impacts
9. References
10. Facilities, Equipment and Other Resources.
    - Experimental Protocol document (Lehigh EF website)
    - Payload Project Protocol (Lehigh EF website)
    - Lehigh EF Users Guide (Lehigh EF website)

Components of a Competitive NSF Proposal

11. Data Management Plan
    - Data Description; Formats; Data Policies, Archiving and Preservation (Lehigh EF website)

NHERI Lehigh EF Resources

http://lehigh.designsafe-ci.org



NHERI Lehigh EF Resources

http://lehigh.designsafe-ci.org

Data Management Plan

Data Description

The project will utilize the NHERI computational and experimental facilities located at Lehigh University and at UC San Diego as well as the computational facilities at the University of Arizona. Experimental, computational, and simulation data developed will be archived to enable re-use by other researchers. The DesignSafe CI will be the central location for storage and share of the data generated from this project.

The data management plan contained here is associated with the physical experiments and numerical simulations described below. The research team will be responsible for uploading all data, including: the metadata that describes the experimental setup report; unprocessed experimental data; converted experimental data; metadata that describes the numerical simulation models; numerical simulation model input data; numerical simulation model output data; numerical simulations processed data; pictures and video.

The proposed research project will generate data from two sources:

- *Numerical Simulations:* Numerical simulations will be conducted involving the use of OpenSees (University of Arizona, Lehigh University) and ANSYS and/or ABAQUS (University of Arizona). Data from the computer models in OpenSees and ANSYS and/or ABAQUS, loads, and results will be made

NSF Resources

- NSF Grants.gov Application Guide
  http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide
- Program Guidelines (e.g., NSF 17-073Y; NSF 17-602)
- Program Director – strongly encourage you to talk to the NSF program director
  - Whether particular NSF program is a good fit for your proposed research
  - Any budget questions (limits)

Thank you