

Concept Papers for Development of UT-ORII Convergent Research Initiatives

Due date for submissions: September 13, 2024

Background

The mission of the University of Tennessee-Oak Ridge Innovation Institute (UT-ORII) is to strategically align ORNL and UT expertise and infrastructure in research and graduate education. A core pillar of UT-ORII's approach is support for *Convergent Research Initiatives* (CRIs), within which a concerted investment is made to support research faculty at UT and research staff at ORNL advancing work in emerging areas of strength for the combined institutions. To date, UT-ORII has launched CRIs in four topics: (i) Clean Manufacturing & Advanced Materials, (ii) Energy Storage & Transportation, (iii) Radiopharmaceuticals, and (iv) Circular Bioeconomy Systems.

The Concept Papers requested by this document will propose topics for one additional CRIs that will be selected by UT-ORII to be launched in calendar year 2025. The evaluation of Concept Papers from this open call is intended to evaluate a wide range of potential CRI topics and to allow UT-ORII to develop a balanced portfolio of research activities. Proposals that have significant overlap with existing CRIs are discouraged. Similarly, proposals that have been submitted unsuccessfully in an earlier competition that are submitted with minimal changes are not likely to be successful.

A CRI within UT-ORII will typically receive around \$20M in direct funding over a five-year period, including funds from the state of Tennessee and ORNL's LDRD program. These funds will enable a CRI to recruit and establish 10 research faculty at UT and 10 research staff at ORNL. UT-ORII funds should be viewed as a seed investment, not as funds that can fully support all aspects of this large research team. The budget model for a CRI assumes that at a minimum, an additional \$15-20M will be obtained by the CRI team from programs external to UT-ORII (e.g., DOE or other federal sponsors) during the five-year period. It is expected, for example, that a successful CRI will develop funding for 25 or more UT PhD students. Successful CRIs will also need to demonstrate potential for substantial growth beyond this initial five-year period.

Eligibility

Concept Papers may be submitted by any UT faculty member or ORNL staff member. Coordination of efforts between related topics to define CRI topics with the technical breadth and interdisciplinary character that define UT-ORII's mission is strongly encouraged.

Selection Process

Concept Papers from this open call will be reviewed by UT-ORII's leadership team and UT-ORII's Internal Advisory Committee to select up to 10 topics that will be invited for further development and review. These teams will be asked to make presentations to UT-ORII on or around November 1. A subset of teams will then be invited to submit Phase II Concept Papers that will be due on or around December 18 and make a further presentation to UT-ORII on or around January 15. Selection of the successful CRI will be announced by the end of February to allow initiation of activities for the CRI to commence in 2025.

Each Concept Paper must identify a single individual who will be the key point of contact for the submitting team if the topic advances through the selection process and a leadership team of 3

additional members. UT-ORII's funding model for CRIs includes partial salary support for the leadership team of a CRI.

Selection Criteria

A successful CRI topic must have a compelling technical concept, a well-defined growth trajectory for national impact, and a strong core of technical leaders at UT and ORNL. Specific aspects of each of these factors are listed below. Not every CRI topic will address all criteria listed below, but topics that cannot address every criterion will be at a disadvantage.

Strength of technical concept

- The technical concept should not be too broad (e.g., “the environment”) or too narrow (e.g., “reinforced screw fittings for flagpoles”)
- The concept should allow strategic growth for UT and ORNL and show knowledge of existing strategic planning at UT and ORNL
- UT and ORNL can realistically expect to be a national leader in the technical area
- The technical concept will remain an exciting field in 15 years
- The topic will draw on capabilities at ORNL and UT in ways that cannot be fully realized by either institution alone

Growth trajectory for national impact

- The topic has opportunities for future funding from DOE or other federal agencies that significantly exceed the initial UT-ORII investment
- Opportunities exist to align the CRI with economic and work force development in the state of Tennessee
- The investment of UT-ORII funding in the CRI topic will not be dwarfed by non-federal R&D efforts (e.g., industry R&D, venture capital investment)

Technical leaders for the CRI

- The leadership team includes 4 researchers at UT and ORNL with recognized technical leadership in the CRI topic who will coordinate activities of a larger technical community at UT and ORNL and who have experience in leading team-oriented research programs
- The CRI topic strongly aligns with multiple ORNL groups
- The CRI topic strongly aligns with multiple academic departments within the UT system
- Any signature physical facilities that will be critical to the CRI have physical capacity to add 20+ active researchers and 25+ PhD students within 5 years

Concept Paper Format

A concept paper must be one page in length, with one additional page listing some supplementary information specified below. Required elements of the one-page topic description are:

1. A title that succinctly describes the proposed CRI topic
2. Identification of a single individual who will represent the CRI topic in communication with the UT-ORII selection process
3. A description of the proposed CRI topic written to be useful to both experts in the topic area and readers from other fields
4. A clear definition of multiple “grand challenges” within the topic that can be expected to be accomplished by the global R&D community (not just UT and ORNL) within the next 10 years

5. 2-3 stated themes within the overall CRI concept

In an additional page, provide the following information:

1. List 3 mid-career/senior researchers at UT or ORNL who align with the topic (name, job title, affiliation) who together with the individual identified above will comprise the CRI leadership team
2. List 3+ groups at ORNL that would be strongly involved in the CRI topic
3. List academic departments from the UT system that would be strongly involved in the CRI topic (department name, which UT campus)
4. List primary academic and national lab competitors that have established efforts related to the CRI topic
5. List DOE offices that have a funding portfolio covering the topic, including an estimate for total annual R&D funding at Technology Readiness Level (TRL) 1-4 from each office
6. List other federal agencies with a relevant funding portfolio, including an estimate for total annual R&D funding at TRL 1-4
7. List key industry entities performing relevant R&D

How To Submit

Complete submissions must be sent before noon on September 13, 2024 to utorii@ornl.gov. Late submissions will not be considered.

Questions about the Concept Papers or submission process should be directed to David Sholl, Executive Director, UT-ORII (shollds@ornl.gov)