



Wearable Technologies



University of Puerto Rico
Central Administration
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IRG 2 EXPLORATORY FUNDS COMPETITION
FY 2023-2024
SUBMISSION DEADLINE: **September 30, 2023**

INTRODUCTION

The objective of the exploratory research grants within CAWT IRG2 is to provide seed funding for developing novel and innovative ideas in energy harvesting and storage for wearable technologies. Specifically, they are intended to:

- 1) Leverage on collaborations within the CAWT/IRGs, other jurisdiction researchers, and CAWT facilities.
- 2) Be catalytic in seeking competitive (federal) funding.
- 3) Translate to high-risk/high-payoff research work.
- 4) Be within the scope of the NSF cooperative agreement.
- 5) Lead to tangible outcomes targeted at the power needs of wearable devices.
- 6) Capitalize on existing CAWT resources.

The participation and inclusion of IRG2 members are encouraged, but not necessary. Evaluation priority will be given to those proposals that also contain at least one junior faculty (defined as a faculty member that does not possess the rank of full professor). Four-year college faculty are encouraged to apply. An investigator may serve as Principal Investigator (PI) on only one proposal and two as participant.

For YEAR 5, the exploratory funds in IRG2 will be targeted at:

- Developing all solid-state miniaturized energy storage for medical devices. This includes Li-ion and Li-S batteries, but other options will be considered if suitable for the task.
- Developing energy harvesting devices targeted at the power needs of wearable devices. This includes photovoltaic and piezoelectric devices, but other options will be considered if suitable for the task.

CONTENT

FORMAT:

The proposal should not be more than 3 pages. Document should be formatted using a 1.0 inch margin and Arial 11 font. The 3 pages should only include the project description, innovation, summary from previous exploratory funds (if any), IRG2 relevance statement, group description, research plan, outcomes, and budget/justification.



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COVER LETTER (1 PAGE MAX, NOT INCLUDED WITHIN THE 3 PAGE MAX)
Each proposal must contain a cover letter addressed to the IRG2 leader, highlighting the important aspects of the proposal.

TITLE

It should be located at the top of the first page of the proposal. Below the title, the names of the faculty members and corresponding organizations should be included. Make sure you distinguish which faculty member will serve as the proposal's principal investigator.

PROJECT DESCRIPTION

This should be a brief description of the project, what challenge(s) it intends to address, and what is the preliminary hypothesis of the proposed work. It should also include the **intellectual merit** (encompasses the potential to advance knowledge) and the **broader impact** (encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes).

INNOVATION

This section intends to briefly describe the innovative aspect of the project. Some questions that can be used to guide the discussion are but not limited to: (i) Does the application challenge and seek to shift current research paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? (ii) To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts? (iii) Does the project address an important problem or a critical barrier to progress in the field? (iv) Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?

SUMMARY OF WORK FROM PREVIOUS EXPLORATORY FUNDS (ONLY IF APPLICABLE)

Provide a summary of the main outcomes of any previous exploratory research funds.

IRG2 RELEVANCE STATEMENT

Here you must address:

- How this exploratory project is of interest to IRG2 which is about developing all solid-state miniaturized energy storage (e.g., Li-ion and Li-S batteries) for medical devices.
- How you will capitalize on existing CAWT resources.



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RESEARCH PLAN

Provide a summary of how the proposed research will be conducted, which can include methodologies, etc. Make sure that the proposed research can be conducted within the time scale of the proposal.

PROJECT DURATION

1 Year

PROJECT OUTCOMES

You must provide not only scientific outcomes but also which agency/programs this project will be submitted for full funding and in which time frame.

BUDGET

You can request up to \$50,000 in funds that should be used for students, materials, or small equipment (less than \$5K) that is fully justified within the scope of the proposed work. Support for travel to conferences or the like is covered only for activities in the U.S.

REFERENCES (NOT INCLUDED WITHIN THE 3-PAGE LIMIT)

Provide all necessary references in any appropriate format.

MANAGEMENT PLAN (1 PAGE MAX, EXCLUDED FROM THE 3-PAGE LIMIT)

This section must include a Gantt chart with the milestones, tasks, and outcomes, the timeframe for each task and outcome, and the person responsible for it. Also, it should include a paragraph providing an explanation of the roles, expertise, and responsibilities of each member of the team. You must address how well qualified the team is to conduct the proposed activities. If a junior faculty member is part of the team a brief description of his/her development plan should be included.

REVIEWERS LIST

Provide a list of 3-4 reviewers that could or should not review your proposal.

SUBMIT MATERIALS AS A SINGLE PDF file to:

Yeiza M. Hernandez Bianchi (yeiza.hernandez@upre.edu) and (cc) IRG2 leaders Ram Katiyar (ram.katiyar@upr.edu) and Gerardo Morell (gerardo.morell@upr.edu)

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