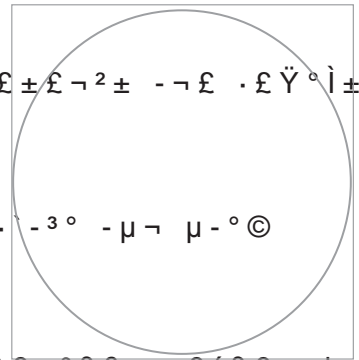


OFFICIAL ABSTRACT and CERTIFICATION

Category  
Pick one only —  
mark an "X" in box  
at right

- Animal Sciences
- Behavioral & Social Sciences
- Biochemistry
- Biomedical & Health Sciences
- Biomedical Engineering
- Cellular & Molecular Biology
- Chemistry
- Computational Biology & Bioinformatics
- Earth & Environmental Sciences
- Embedded Systems
- Energy: Chemical
- Energy: Physical
- Engineering Mechanics
- Environmental Engineering
- Materials Science
- Mathematics
- Microbiology
- Physics & Astronomy
- Plant Sciences
- Robotics & Intelligent Machines
- Systems Software
- Translational Medical Sciences

1. As a part of this research project, the student directly handled, manipulated, or interacted with (check ALL that apply):
  - human participants                       potentially hazardous biological agents
  - vertebrate animals                       microorganisms                       rDNA                       tissue
2. I/we worked or used equipment in a regulated research institution or industrial setting:                       Yes                       No
3. This project is a continuation of previous research.                       Yes                       No
4. My display board includes non-published photographs/visual depictions of humans (other than myself):                       Yes                       No
5. This abstract describes only procedures performed by me/us, work only                       Yes                       No
6. I/we hereby certify that the abstract and responses to the                       Yes                       No



This stamp or embossed seal attests that this project is in compliance with all federal and state laws and regulations and that all appropriate reviews and approvals have

been obtained.