

# AITOR BRACHO

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## EDUCATION

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### Duke University Graduate School

Ph.D. Candidate in Nuclear and Particle Physics.

August 2019 - present

### Florida International University

Bachelor of Science in Physics, *magna cum laude*.  
Minor in Mathematics.

August 2016 - May 2019

Unweighted GPA: 3.71

## EXPERIENCE

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### Duke University, Triangle Universities Nuclear Laboratory

*PhD Candidate and Research Assistant, Barbeau lab*

August 2019 - Present

*Durham, NC*

- Collecting gamma ray spectra to optimize the summation method for modeling the reactor antineutrino anomaly by updating fission product yields in nuclear databases.
- Building a maximum-likelihood-based model of analysis thereby developing novel fitting procedures for gamma ray spectra in nuclear physics applications.
- Licensed operator of Triangle Universities Nuclear Laboratory (TUNL) tandem particle accelerator.
- Experience evaporating Lithium Fluoride targets for neutron beam production.
- Radiation safety certified.

### North Carolina League of Conservation Voters (NCLCV)

*Energy Storage Systems Fellow*

May 2024 - August 2024

*Raleigh, NC*

- Conducted in-depth research and policy analysis on nuclear energy and energy storage as a means to critically assess Duke Energy's Carbon Plan/Integrated Resource Plan (CPIRP).
- Led the creation of a comprehensive report evaluating Duke Energy's proposed energy storage initiatives, highlighting the insufficiency of these plans in meeting North Carolina's 2030 emissions reduction targets.
- Analyzed data from the U.S. Energy Information Administration's Preliminary Monthly Electric Generator Inventory database to benchmark North Carolina's energy storage efforts against other states and utilities.
- Conducted interviews with experts from the Conservation Voters network and external environmental advocacy groups to gain insights into energy storage practices and policies in other states.
- Evaluated the impact of federal and state policies on the availability, affordability, and feasibility of energy storage projects in the state, incorporating these findings into the final report.
- Authored a final report on energy storage in North Carolina, which will be submitted as a statement of public comment to the North Carolina Utilities Commission.
- Authored a report on the current and future state of nuclear energy in North Carolina, evaluating Duke Energy's proposals while delivering actionable recommendations to inform NCLCV's stance on nuclear energy developments in the state.

### TerraPower, LLC

*Experimental Methods Intern*

June 2023 - September 2023

*Bellevue, WA*

- Developed and compared multiple analytical models of neutron noise in the Molten Chloride Fast Reactor (MCFR).

- Utilized Python and the Advanced Reactor Modeling Interface (ARMI) to create predictive models for future neutron noise results in the Molten Chloride Reactor Experiment (MCRE).
- Conducted in-depth literature reviews by analyzing numerous academic publications related to neutron noise in Molten Salt Reactors.
- Communicated complex technical concepts and translated intricate technical details into a format understandable by a wider audience.
- Authored a comprehensive technical report documenting research findings, methodologies, and insights.

## **VOLUNTEERING EXPERIENCE**

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**Nate Baker Durham City Council Election Campaign Team** September 2023 - November 2023  
*Durham, NC*

- Collaborated with campaign staff to develop and execute strategic initiatives aimed at increasing voter engagement and support for Nate Baker's platform.

**North Carolina League of Conservation Voters (NCLCV)** August 2024 - Present  
*Durham, NC*

- Contributing to the preparation of a statement of public comment for submission to the North Carolina Utilities Commission, aiming to influence the consideration of the 2025 Duke Energy Carbon Plan and the state's approach to energy storage.