

# STEFANO CASTRO TOGNINI

📍 Oak Ridge National Laboratory    @ togninis@ornl.gov    ☎ +1 (865) 341 0453    🌐 stognini    in stognini

I have a **Ph.D. in Physics**, focused on **High Energy Physics (HEP)**. Currently a **Research Associate at Oak Ridge National Laboratory** mainly working on *Celeritas*, a GPU Monte Carlo (MC) particle transport code for HEP experiments that will enable the use of DOE's Leadership Computing Facilities (LCFs) in HEP computing workflows. In the past I was a collaborator working on two experiments known as **MINOS** and **NO $\nu$ A**, managed by **Fermi National Accelerator Laboratory (Fermilab)**. These are long-term multi-million dollar endeavors built to understand the nature of neutrinos and answer fundamental questions related to astrophysics, dark matter, and more. My **7+ years of experience**, working with diversified teams, led to many **published data analyses**, all developed using **C++, Python, ROOT, shell scripting, massive parallel computing, and MC simulations**. Software development is managed using **version control (GIT/SVN)**, allied with automated code referencing (**Doxygen**). Production of **technical documentation** is routinely done. Finally, I have experience with **teaching** at undergraduate level, **mentoring** graduate students, presenting findings at international conferences, as well as participating in **science outreach** events.

## PROFESSIONAL EXPERIENCE

### Research Associate

*HPC Methods for Nuclear Applications Group*  
Nuclear Energy and Fuel Cycle Division  
**Oak Ridge National Laboratory**

📅 2019 – Present

📍 Oak Ridge (TN), U.S.

## COLLABORATIONS

### Celeritas Project

[github.com/celeritas-project](https://github.com/celeritas-project)

📅 2020 – Present

📍 ORNL

Core member of the Celeritas development team.

### URL Muon Detector Project

📅 2020 – Present

📍 ORNL

Core team member involved with all stages of the project: detector design, simulation, commissioning, deployment, and analysis.

### NO $\nu$ A Experiment

[novaexperiment.fnal.gov](http://novaexperiment.fnal.gov)

📅 2013 – 2018

📍 Fermilab / ANL / UFG

- Leading author of a published data analysis: [PRD 99 122004](#).
- Integrated a Monte Carlo package with the Fermilab computing framework that is being used by two other experiments at Fermilab and CERN.
- Commissioned/maintained a Remote Operation Center (ROC) at UFG.
- Hardware work that consisted in testing the quality of Avalanche Photo Diodes before being installed in the NO $\nu$ A Near Detector.

### MINOS Experiment

[www-numi.fnal.gov](http://www-numi.fnal.gov)

📅 2011 – Present

📍 Fermilab / ANL / UFG

- Worked in 2 published data analyses: [PRD 91 112006](#) / [PRD 93 052017](#).
- Wrote documentation for commissioning and certifying ROCs.
- Installed and maintained the MINOS Main Operation Center at Fermilab.
- Built, documented, and maintained a MINOS ROC at UFG.

## SCIENTIFIC PUBLICATIONS

INSPIRE HEP profile | [inspirehep.net/authors/1074966](https://inspirehep.net/authors/1074966)

## SOFT SKILLS

Teaching (3 yrs)

Mentoring (4 yrs)

Scientific outreach

Public speaking

Portuguese (native)

English

Italian

French

●●●●●  
●●●●●  
●●●●●  
●●●●●

## HARD SKILLS

### Technical skills

Data structuring

Parallel computing

Data analysis

Monte Carlo simulation

### Programming & scripting languages

C/C++

Python

SQL

Shell

LaTeX

### Frameworks, libraries, databases, & tools

Fermilab ART Framework

GIT

Geant4

ROOT

CORSIKA

Doxygen

TORQUE

## EDUCATION

Ph.D. in Physics – High Energy Physics

**Federal University of Goias**

Funding: CAPES, CNPq, ANL

📅 2012 – 2018

📍 Goiania (GO), Brazil

DOE OSTI [www.osti.gov/biblio/1468447](https://www.osti.gov/biblio/1468447)  
INSPIRE HEP [inspirehep.net/record/1692030](https://inspirehep.net/record/1692030)

M.Sc. in Physics – High Energy Physics

**Federal University of Goias**

Funding: CAPES, Fermilab

📅 2010 – 2012

📍 Goiania (GO), Brazil

B.Sc. in Physics

**Federal University of Goias**

📅 2005 – 2010

📍 Goiania (GO), Brazil