

STEFANO CASTRO TOGNINI



📍 Oak Ridge National Laboratory @ togninis@ornl.gov stognini in stognini

Research Associate at Oak Ridge National Laboratory mainly working on *Celeritas*, a GPU Monte Carlo (MC) detector simulation code for High Energy Physics (HEP) that will enable the use of DOE's Leadership Computing Facilities—such as Frontier and Summit—by HEP experiments. In the past I was a collaborator on MINOS and NO ν 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 GIT, allied with automated code referencing (Doxygen). Production of technical documentation is routinely done. Finally, I have experience teaching at undergraduate level, mentoring graduate students, presenting technical seminars, and talking to the public at science outreach events.

PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate

Oak Ridge National Laboratory

HPC Methods for Nuclear Applications | Nuclear Energy and Fuel Cycle Division

📅 2019 — Present

📍 Oak Ridge (TN), U.S.

COLLABORATIONS

Celeritas Project

🔗 github.com/celeritas-project

📅 2020 — Present

📍 ORNL

A GPU Monte Carlo particle transport code for HEP experiments.

📄 DOE CODE: [10.11578/dc.20221011.1](https://doi.org/10.11578/dc.20221011.1)

URL Muon Detector Project

📅 2020 — Present

📍 ORNL

A compact muon detector apparatus developed to test and validate new non-destructive techniques for geological disposal safety assessments (GDSA).

NO ν A Experiment

🔗 novaexperiment.fnal.gov

📅 2013 — 2018

📍 Fermilab / ANL / UFG

- Leading author of [Phys. Rev. D 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.
- Tested avalanche photodiodes before their installation in the Near Detector.

MINOS/MINOS+ Experiment

🔗 www-numi.fnal.gov

📅 2011 — Present

📍 Fermilab / ANL / UFG

- Contributed to [Phys. Rev. D 91, 112006](#) / [Phys. Rev. D 93, 052017](#).
- Installed and maintained the MINOS Main Operation Center at Fermilab.
- Built, documented, and maintained a MINOS ROC at UFG.

PUBLICATIONS

✉ iNSPIRE HEP | inspirehep.net/authors/1074966

SOFT SKILLS

Teaching Mentoring Science outreach

Portuguese (native)

English

Italian

French



HARD SKILLS

Technical skills

Data analysis Monte Carlo simulation

Data structuring Parallel computing

Programming & scripting languages

C/C++ Python SQL Shell L^AT_EX

Frameworks, libraries & tools

art GIT Doxygen Geant4 ROOT
CORSIKA Spack LSF 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

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