STEFANO CASTRO TOGNINI

Oak Ridge National Laboratory | @ togninis@ornl.gov | +1 (865) 341 0453 | stognini | stognini

I have a **Ph.D. in Physics**, focused in High Energy Physics. Currently a **Research Associate at Oak Ridge National Laboratory** working on Monte Carlo development for the DOE Exascale Computing Project. In the past I was a **collaborator at Fermi National Accelerator Laboratory** (Fermilab), working as a Master's, and later on Ph.D. candidate, in two experiments known as MINOS and NOνA. 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. Each experiment is a worldwide effort encompassing up to 300 scientists. My **7+ years of experience** working with diversified teams produced many **published data analyses**, all developed using **C++, Python, ROOT, shell scripting, massive parallel computing, and Monte Carlo 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 the undergraduate level, **mentoring** graduate students, presenting findings at international conferences, as well as participating in **science outreach** events.

PROFESSIONAL EXPERIENCE

Research Associate

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

2019 – Present | Oak Ridge (TN)

COLLABORATIONS

Celeritas Project

github.com/celeritas-project

2020 – Present | ORNL

1. Core member of the Celeritas development team.
2. Implemented electromagnetic physics processes.
3. Implemented import tools to load Geant4 data into Celeritas.
4. Developed physics validations tools
5. Developed an event display to visualize detector geometry and particle information.

URL Muon Detector Project

2020 – Present | ORNL

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

NOνA Experiment

novaexperiment.fnal.gov

2013 – 2018 | Fermilab / ANL / UFG

1. Leading author of a published data analysis: PRD **99** 122004
2. Integrated a Monte Carlo package with the Fermilab computing framework that is being used by two other experiments at Fermilab and CERN.
3. Commissioned/maintained a Remote Operation Center (ROC) at UFG.
4. Hardware work that consisted in testing the quality of Avalanche Photo Diodes before being installed in the NOνA detector.

MINOS Experiment

www-numi.fnal.gov

2011 – 2018 | Fermilab / ANL / UFG

1. Worked in 2 published data analyses: PRD **91** 112006 / PRD **93** 052017.
2. Wrote documentation for commissioning and certifying ROCs.
3. Installed and maintained the MINOS Main Operation Center at Fermilab.
4. Built, documented, and maintained a MINOS ROC at UFG.

SCIENTIFIC PUBLICATIONS

iNSPIRE HEP profile | 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 querying | Data analysis | Monte Carlo simulation | Data visualization

Programming & scripting languages

C/C++ | Python | SQL | Shell | LaTeX

Frameworks, libraries, databases, & tools

Fermilab ART Framework | ROOT | Geant4 | CORSIKA | Redmine | Doxygen | GIT | PBS TORQUE

EDUCATION

Ph.D. in Physics – High Energy Physics

Federal University of Goias, Brazil

Funding: CAPES, CNPq, Argonne

2012 – 2018

DOE OSTI www.osti.gov/biblio/1468447
iNSPIRE HEP inspirehep.net/record/1692030

M.Sc. in Physics – High Energy Physics

Federal University of Goias, Brazil

Funding: CAPES, Fermilab

2010 – 2012

B.Sc. in Physics

Federal University of Goias, Brazil

2005 – 2010