

# Spring 2023 Colloquium

Department of Physics & Astronomy, A&M-Commerce

**Feb 9, Thursday, 4-5 PM in Science Building 127**

(coffee and cookies will be served at 3:50 PM)

**Nuclear Physics**

## What can we learn in nuclear collisions at the Large Hadron Collider?

**Dr. Fernando Navarra**

**University of Sao Paulo, Brazil**



Dr. Navarra earned BS (1982) and MS (1984) degrees in Physics at the University of Sao Paulo (Brazil), and a Ph.D. degree (1989) in Physics at the University of Marburg (Germany). His Ph.D. research topic was on Relativistic Heavy Ion Collisions. In 1989, Dr. Navarra began his appointment as an assistant professor at the University of Sao Paulo, where he is currently doing research in particle and nuclear physics.

He worked as a visiting scientist at Trieste, Warsaw and Stanford. More information about Dr. Navarra and his research can be found at <https://portal.if.usp.br/ifusp/>

### Abstract

In high energy nuclear collisions we may produce matter at extreme conditions: extremely high density, high pressure, high temperature, high angular momentum and extremely low viscosity. In these collisions we may also produce the strongest magnetic field in nature. Moreover we produce a new state of matter called Quark Gluon Plasma and new particles called exotic hadrons. In this talk I will briefly review the main aspects of high energy nuclear collisions and of the standard model of particle physics, giving special attention to the ultra-peripheral collisions, where we may be able to measure the effects of the magnetic field and the new exotic hadrons.