Lami Suleiman

Contact

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Languages

French: native
English: proficient
(219/230 Cambridge
Proficiency English)

Field of research

Neutron star modelling
Nuclear astrophysics
Equations of state
Gravitational waves
Neutrino emission
Accreting neutron stars
Thermal relaxation of
neutron stars

Computing skills

Python,
C, Fortran,
Shellscript,
Mathematica,
Makefile,
C++,
LaTeX

Public code development

Crust Unified Tool
Equation of state
Reconstruction
LSC Algorithm Library

Grants

Mobility Bursary of the
Paris University
NSF Access Explore

Professional experience

May 2023– **California State University, Fullerton** Fullerton (USA)

Post doctoral research contract funded by the "Nuclear Physics from Multi-Messenger Mergers" focused Research Hub.
Research in Astronuclear physics and neutron star physics at "Nicholas and Lee Begovich Center for Gravitational Wave Physics and Astronomy".

- Research subjects:
  - The role of the neutron star mass in the inference of nuclear physics parameters in the context of next-generation x-ray and gravitational wave detectors (ongoing).
  - The role of the nucleon self-energy on neutrino emission in hot and dense matter (ongoing).
  - Equations of state for Bayesian inference: crust construction, chiral effective field theory constraints, and low density correlation with astrophysical parameters.
  - Quasi-universal relations in the context of next-generation x-ray and gravitational wave detectors.
  - Data analysis for the gravitational wave source S230529.
  - Finite reaction rate of electron captures in deep crust heating.
  - Code development for the Crust Unified Tool Equation of state Reconstruction
- Supervision of Master students:
  - Modern equation of state models for "Binary Love" relations used in gravitational wave parameter estimation.
  - Gaussian processes for high density parametrization of neutron star's equation of state.
- Peer review for Nature Astronomy, Monthly Notices of the Royal Astronomical Society, Physical Review D, European Physical Journal A, and LIGO P&P.
- Collaboration membership: LIGO (CSUF group, part of the Rapid Response Team), Einstein Telescope.

Oct. 2019
– Mar. 2023 **Laboratoire Univers et THéories, Univerisité Paris-Cité & Centrum Astronomiczne im. Mikołaja Kopernika**
Meudon, France ; Warszawa, Poland

PhD in Astronomy/Astrophysics (France) and Astronomy (Poland)
Cotutelle in collaboration with Prof. Zdunik and Dr. Oertel.

- Thesis subject: "Dense matter properties and neutron star modeling".
  - Impact of non-unified equation of state on neutron star modeling,
  - Nuclear models and heat sources of compressed crusts in the case of slow accretion, spinning down and decaying magnetars,
  - Neutrino emissivity calculations of Modified Urca process.
- Additional research:
  - Accuracy of macroscopic parameter modelisation with non-unified equations of state,
  - Establishing piecewise polytropic fits from unified equations of state.
- Collaboration membership: Virgo (LUTH/Caen group) and Einstein Telescope.

Financial aspect: national stipend from Poland, contract of scientific engineer from CNRS.

Sept-Dec 2020
– Sept-Dec 2021 **Institut Universitaire de Technologie d'Orsay, Paris-Saclay** Orsay, France

Teaching
Computing skills applied to Physics, first year of "Physical measurements" class. Practical sessions on Python coding for physical problem solving, writing exam subjects.

Academic background

Oct 2019
– June 2021 **PhD training** PHAROS: 2019, Germany and 2020, Poland

- Courses: scientific ethics, high resolution numerical simulations, accretion processes, cosmic distance scales, gravitational waves, philosophy of science, scientist's ABC.
- PhD schools: "Nuclear Astrophysics for multi-messenger astronomy" and "Superfluidity and transport for multi-messenger Physics of compact objects"

Sept 2014
– July 2019 **Undergraduate and graduate studies** Université de Tours, France

Masters in fundamental Physics "Non Linear physical models"
Licence in Physics and chemistry Major in Physics

Contribution to the scientific community

Jan. 2020
– Dec 2022 **Youth network of the French Society of Physics** Paris, France

Member of the bureau: in charge of international relations.

- creation of the french National Comity of IAPS
- organization of the french preliminaries of PLANKS (physics League Across Numerous Countries fro Kick-ass Students)

Feb. 2020
/ Feb. 2021 **"Elbereth" conferences for young researchers in Astrophysics of Ile de France** Paris, France

Organizer in charge of financing the conference and lecturer

Mar. 2019 **Lecturer for "Girls, math and computer engineering: a luminous equation"** Paris, France

Career guidance of young women in High school

March 2017
–Jul. 2019 **Founder of the student association Young Minds Tours** Tours, France

Physics student association of the University of Tours
Under the European Physical Society label