UNIVERSITÀ DEGLI STUDI DI MILANO

TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE ____6045_____**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di __Fisica__**

Scientist- in – charge: **__Prof. Neri Nicola__**

[Name and surname]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Xing
Name	Tianyu

PRESENT OCCUPATION

Appointment	Structure
None	

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	Particle Physics and Nuclear Physics	University of Chinese Academy of Sciences	Successive Master's and Doctoral Program
PhD	Particle Physics and Nuclear Physics	University of Chinese Academy of Sciences	3

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
None		

FOREIGN LANGUAGES

Languages	level of knowledge
English	Advanced

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2017	Student scholarship of the Chinese Academy of Sciences student

TRAINING OR RESEARCH ACTIVITY

1. The COMET experiment

- I have joined the COMET collaboration, with research focusing on physics analysis and algorithm development, including simulation, tracking and data analysis.
- The COMET (COherent Muon to Electron Transition) experiment, which is located in Japan and uses a proton beam at J-PARC to search for the coherent neutrinoless process $\mu + N \rightarrow e + N$ with single event sensitivity of 3×10^{-17}. The signal of COMET Phase-I is 105 MeV electron detected by a cylindrical drift chamber (CDC) with all stereo wires.
- **Software algorithm development:**
  i. Tracking algorithm to reconstruct multiple turn tracks in CDC, including track finding using the RANSAC algorithm and track fitting using the Kalman filter.
  ii. Simulation of detector and detector response algorithm.
  iii. Development and maintenance of the software framework.
- **New physical analysis:**
  i. Using Monte Carlo simulation to simulate signal of new physics particle Majoron.
  ii. Using likelihood analysis method to predict the sensitivity of Majoron searching on the COMET experiment.
- **Neural Network Algorithms:**
  i. Cooperative development of program utilizing ”Neural Network Image Recognition Algorithm”.
  ii. Using ”Generative Adversarial Neural Networks (GAN)” to generate background simulation samples.

2. Experiment for DIPOle moments of short-lived heavy fermions at LHC

- I have joined the collaboration led by Prof.Nicola Neri, working on the research programme “Experiment for DIPOle moments of short-lived heavy fermions at LHC”
- Preparing for the proof-of-principle test on IR3 at LHC
- **Development of software framework:**
  i. Design of IO manager, event model, event loop manager and so on.
  ii. Provide technical support to port algorithms to the software framework
  iii. Maintenance of the softeare framework

3. The MACE experiment

- I have participated in the investigation and discussion of the MACE experiment
- The Muonium-to-Antimuonium Conversion Experiment (MACE) is planned to use the proposed μ

source of China Spallation Neutron Source (CSNS), and aims to search for the spontaneous muonium to antimuonium conversion and improve the sensitivity by at least two orders of magnitudes compared with PSI result. • Gave several reports including some useful suggestions.

PROJECT ACTIVITY

Year	Project
2018	Graduate school of science in Osaka university

PATENTS

Patent
None

CONGRESSES AND SEMINARS

Date	Title	Place
2019.08.26	"Search for charged lepton flavor violation in J-PARC: The COMET experiment" On FUCT2019	Daegu, Korea
2022.12.07	"Search for new physics of Charged Lepton Flavor Violation on the COMET experiment" On SYSU-PKU Collider Physics forum For Young Scientists	Beijing, China
From 2018.01.29 To 2023.11.23	Reports of progress On COMET Collaboration Meetings	Tokai, Japan

PUBLICATIONS

Books
None

Articles in reviews
Search for Majoron at the COMET experiment Chin. Phys. C, 2023, 47(1): 013108. DOI: 10.1088/1674-1137/ac9897

Congress proceedings
Search for charged lepton flavor violation in J-PARC: The COMET experiment PoS, 2020, NuFact2019: 083. DOI: 10.22323/1.369.0083.
Muonium to antimuonium conversion, Snowmass2021 Whitepaper, arXiv:2203.11406

OTHER INFORMATION

I got my Doctor’s degree as a student of a Successive Master's and Doctoral Program
Proficiency in ROOT, GenFit2, Geant4 and other tools
Programming in C/C++ and Python expertly and extensive experience with Linux

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: __Beijing, China__, __28th Nov. 2023__