GIULIA PAGGI

Ph.D. Student of Nuclear and Subnuclear Physics

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EDUCATION

Ph.D. in Physics
Alma mater studiorum - Università di Bologna

📅 2022 – ongoing 📍 Bologna, Italia

- **Researh theme**: Muon identification within a large hadronic background, and application for tagging neutrino interactions in SND at LHC and for the CMS muon trigger at HL-LHC.

Master degree in Physics
Alma mater studiorum - Università di Bologna

📅 2020 – 2022 📍 Bologna, Italia

- **Grade**:110/110
- **Thesis**: "Construction and test of a cosmic ray telescope based on CMS Drift Tube chambers and data acquisition prototypes of the Phase-2 upgrade"
- Commissioning of two small replicas of CMS DT chambers, called MiniDTs, built at INFN National Laboratory in Legnaro, which were then brought to Bologna to build a cosmic rays telescope
- Development of the data taking online monitor to check in real-time the status of the MiniDTs and data quality
- Software analysis to reconstruct tracks using hits from the two MiniDTs to assess their performances and study the Phase-2 readout electronics performance
- The results were presented at the 108° National Congress of the Italian Physical Society
- **Class**: LM-17 Physics

Bachelor degree in Physics
Alma mater studiorum - Università di Bologna

📅 2017 – 2020 📍 Bologna, Italia

- **Grade**:107/110
- **Thesis**: "Sviluppo di un algoritmo di trigger per la ricerca di particelle esotiche a lunga vita media a High Luminosity LHC con il rivelatore di muoni di CMS"
- Original research work in the context of HL-LHC upgrade. A study of a trigger algorithm to select Heavy Stable Charged Particles using a simulation of the CMS Phase-2 detector.
- By exploiting the improved time resolution of the Phase-2 DT trigger, a method was designed to identify the bunch crossing of collisions that originated slow-moving particles which reach the muon system with a significant delay.
- Combining the current prompt trigger algorithm and the proposed one, the acceptance for the HSCP increases from 67.4% to 93.4%, extending the sensitivity of the baseline trigger, limited to $\beta \equiv v/c \geq 0.7$, to values of β as low as ~ 0.35, while achieving an overall efficiency per particle above 90%.
- The results were presented at the DT Phase-2 Trigger Software Development meeting and at the CMS Exotica workshop
- **Class**: L-30 Physics

TEACHING EXPERIENCE

Tutor
Alma mater studiorum - Università di Bologna

📅 2022 – ongoing 📍 Cesena, Italia

- Teaching support for the physics course in the Computer Science and Engineering bachelor degree.
- Tasks include frontal teaching lessons, reception and counseling for student, support the professor during the exams

PROJECTS

Thesis Internship
Alma mater studiorum - Università di Bologna

📅 2022 📍 Bologna, Italia

- Laboratory activities aimed at the construction and commissioning of a cosmic ray telescope. Software development for data readout, online monitoring and offline analysis.

Summer Student at Fermilab and other US Laboratories
Università di Pisa

📅 2021 📍 LNF, Frascati, Italia

- Topical workshop about ongoing and future particle physics experiments planned at Fermilab and related technological improvements
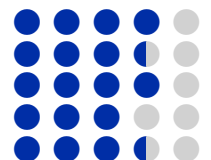
LANGUAGES

Italian ●●●●●
English ●●●●○

PROGRAMMING

C++ ●●●●○
LabVIEW ●●●◐○
LaTeX ●●●●○
Python ●●●○○
ROOT ●●●◐○

CERTIFICATES

Academic IELTS

📅 02/2020

- **Overall band score**: 8.0
- **CERF level**: C1

EDUCATION

High school
Liceo Classico e Musicale Annibale Mariotti

📅 2013-2017   📍 Perugia, Italia

- Classical High School Diploma
- **Grade**: 100/100

CERTIFICATES

Certified LabVIEW Associate
Developer

📅 03/2019