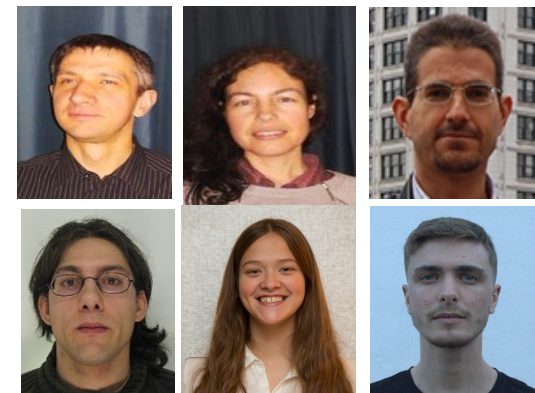




# Partons and QCD group: COMPASS and AMBER experiments

AMBER

Apparatus for Meson and Baryon  
Experimental Research



## Indicators:

- ➔ 2022 + 2023 (April): 4 papers published
- ➔ 2 Masters Theses in 2022 (R. Silva; F. Voldrich)
- ➔ 2 closely related phenomenology papers (P. Faccioli)
- ➔ 1 book directly related: “Particle Polarization in High Energy Physics”, P. Faccioli

## SWOT analysis:

- ➔ Strengths: DY physics coordination at COMPASS and AMBER. Leading role in several analyses. Expertise in DCS. Role in AMBER Publications Committee.
- ➔ Weaknesses: group is now too small, difficult even to supervise more students.
- ➔ Opportunities: interaction with other communities (FAIR; NuPECC; ATLAS; CMS)
- ➔ Threats: precarious or inexistent employment situation for members of the group may lead to the end of the group. The uncertainty of Funding may also threaten our participation in AMBER.

## 2023 Goals

- 1st May - end June: Run start. Proton-He collisions, **antiproton production cross sections** at 4 different beam energies (60 to 260 GeV)  $\longrightarrow$  **input for Dark Matter Searches**  
 $\searrow$  2 days Drell-Yan beam test at the end of June, for CEDARs PID improvement
- Mid August – October: Pilot Run on **muon-proton elastic scattering** for electromagnetic Form Factors of the proton  $\longrightarrow$  **measurement of the proton charge radius**



- Drafting of the final paper on Drell-Yan transverse target azimuthal spin asymmetries for Proton TMD PDFs.
- Release of the Drell-Yan cross section measurement results (Summer)
- Start drafting of the  $J/\psi$  production cross section measurement paper (Summer)



- ✓ Up to 4 summer students doing 1 to 2 LIP internships
- ✓ ERASMUS+ student from Turin doing internship for Bachelor Thesis (Summer)
- ✓ Co-organizing an ECT\* workshop “Parton Distribution Functions at a cross road”, 18-22 September 2023, Trento, Italy.