

Partons and QCD



We joined **COMPASS** in 2003.

DCS full responsibility over the past 22 years.

Direct involvement in COMPASS-II Scientific proposal (2010): polarized Drell-Yan (2015, 2018).

Scientific Coordination of the COMPASS Drell-Yan physics group since 10 years.

Direct involvement in the **AMBER** Scientific proposal (2019): meson structure.



2024

Portuguese relevant role in the field of Hadron Physics.

Connections DY – SIDIS. Connections past – present – future
Fixed target experiments (HERMES, NA10/38/50, HADES, SeaQuest, AFTER, ATLAS, PANDA).

Strong connection with theorists and phenomenologists –
NuPECC LRP 2024; a COST Action application (Oct 2024, ongoing)

Existing facilities

We recommend continuing support of the successful hadron physics programmes in Europe and the participation of European groups at global facilities. Particularly important hadron physics facilities are

- **AMBER** at CERN
- **ELSA** in Bonn, **HADES** at GSI, **MAMI** and **MESA** in Mainz, Germany
- **Jefferson Laboratory** in Newport News, USA

Furthermore, we recommend the support of ongoing hadron physics activities at the multi-purpose facilities Belle II, BESIII and those at the LHC.

C. Quintans, C. Pires, G. Almeida, B. Pereira

M. Stolarski, P. Faccioli, R. Silva, M. Quaresma, A.S. Nunes, C. Franco, L. Silva, P. Bordalo, S. Ramos, H. Santos, M.J. Varanda, D. Sora, F. Mota, A. Pacheco, G. Terça.

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Hadron multiplicites in SIDIS: 3 papers published with M. Stolarski as corresponding author.
Polarized Drell-Yan: 3 papers published with direct contribution from C. Quintans et al.

2 DY papers at drafting stage (C. Quintans)

1 technician/author giving permanent support at AMBER (C. Pires)

2+1 ongoing Masters theses (B. Pereira, G. Almeida, B. Casanelli (Aveiro))

In the last FCT funding call “Fundo CERN” (2024) none of the groups in the Structure of Matter research line got funded: Partons & QCD, NPStrong, NUC-RIA.

After 20 years of consistent FCT support to the activities of the Partons & QCD group, there is no funding since December 2023.

AMBER is not clearly identified as a LIP scientific priority for the future, in spite of the window of opportunity (EIC uncertainties, PANDA on-hold, few CERN experiments in near future).

The AMBER MoU is not signed (yet) by the LIP Direction (portuguese commitment).