

Hadron Spin Physics

The main theme of the group's activity is "Hadronic Spin Physics", with particular emphasis on transverse-spin effects. Philip G. Ratcliffe is author of a seminal paper [1], co-author of a well-known review article [2] and a book [3] on the subject and is also member of the International Advisory Committee of a series of International Workshops on "Transverse Polarisation Phenomena in Hard Processes", having organised the first edition in 2005, hosted at Villa Olmo in Como.

There is an on-going and active collaboration with Oleg Teryaev (Dubna), on the construction of a unified theoretical picture for the description of single transverse-spin asymmetries in hard hadronic collisions. Collaborations such as COMPASS at CERN, HERMES at DESY, STAR and PHENIX at Brookhaven, and PAX at GSI (Philip Ratcliffe is a member of the PAX collaboration) are now producing (or will produce) large amounts of data from many different experiments performed with transversely polarised beams and targets.

Attention has been directed towards single transverse-spin effects in Drell-Yan processes, a topic on which there has been much discussion in the literature: not only is there disagreement on the overall normalisation by as much as a factor $2^{\pm 1}$, but also on the possible presence of special derivative terms. Our work confirms the results of Teryaev and co-workers; a clarifying paper has been published [4].

The Como group participates in the I3HP Projects "HadronPhysics2" and "HadronPhysics3" of the VII European Framework Program; the group also participates in the Italian PRIN2008 research program entitled "Parton distributions and their dependence on intrinsic motion: theory, phenomenology and experimental techniques" and as part of the Pavia node of the continuation proposal for a PRIN2011.

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References:

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