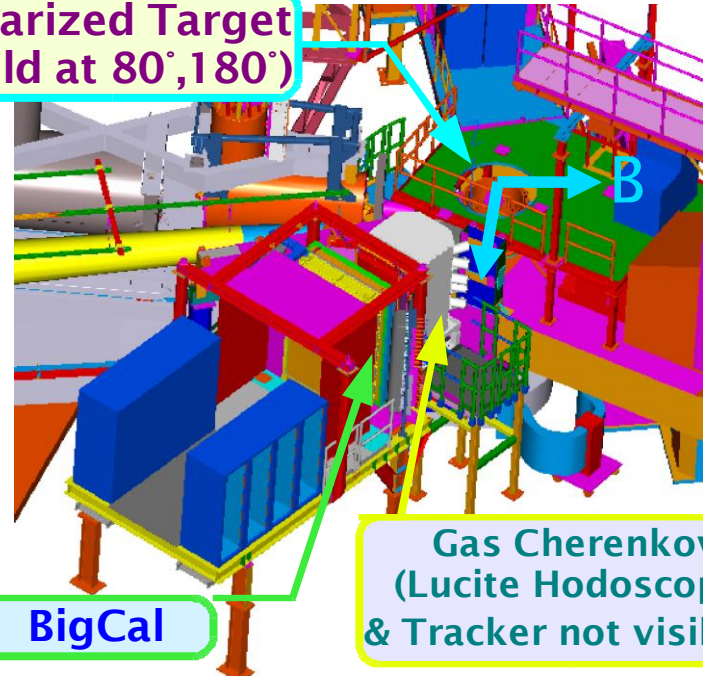


Spin Asymmetries of the Nucleon Experiment - SANE

(TJNAF E07-003)

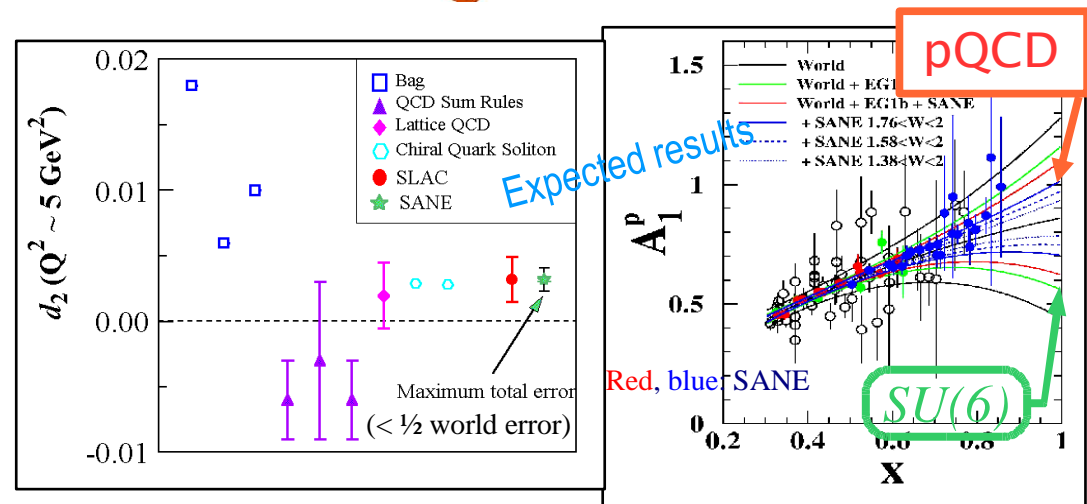
- PHYSICS: proton spin structures $g_2(x, Q^2)$ and $A_1(x, Q^2)$ for $2.5 \leq Q^2 \leq 6.5 \text{ GeV}^2$, $0.3 \leq x_{\text{Bj}} \leq 0.8$
- Address DOE 2011 Milestone for Proton Spin Structure
- Measure inclusive double polarization near-orthogonal asymmetries to:
 - access *quark-gluon* correlations using LO twist-3 effects from $d_2 = \int_0^1 x^2 (2g_1 + 3g_2) dx$: compare with Lattice QCD, QCD sum rules, bag model, chiral quarks
 - test nucleon models (x dependence) and Q^2 evolution
 - explore $A_1(x \rightarrow 1)$; test polarized local duality
- METHOD: Detect **CEBAF 4.8 & 6 GeV polarized electrons** scattered on **solid polarized ammonia target** with **BETA**, a novel large solid angle electron telescope (BigCal + Cherenkov + Lucite + Tracker)

Polarized Target
(field at $80^\circ, 180^\circ$)



BigCal

Gas Cherenkov
(Lucite Hodoscope
& Tracker not visible)



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