X Workshop on High Energy Spin Physics
SPIN
DUBNA
NATO - ARW - 2003

A.Efremov JINR, Dubna

16th International Spin Physics Symposium

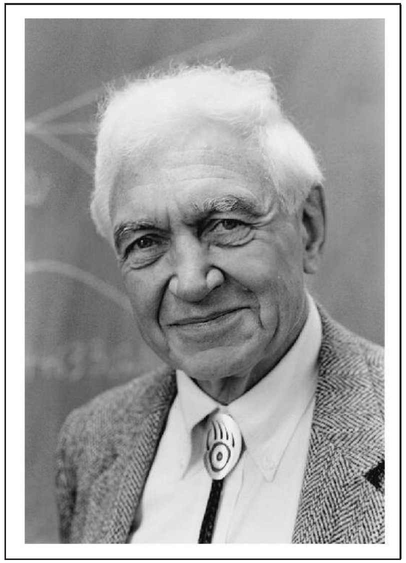
Trieste October 10–16, 2004

X WORKSHOP ON HIGH ENERGY SPIN PHYSICS

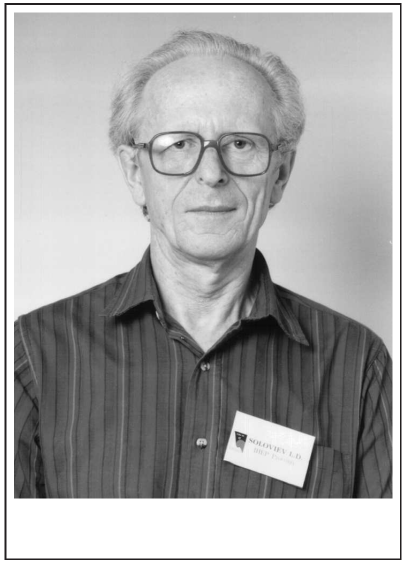
(NATO ARW DUBNA-SPIN-2003)

Dubna September 16–20, 2003

Devoted to memory



Vernon Hughes (1921–2003)

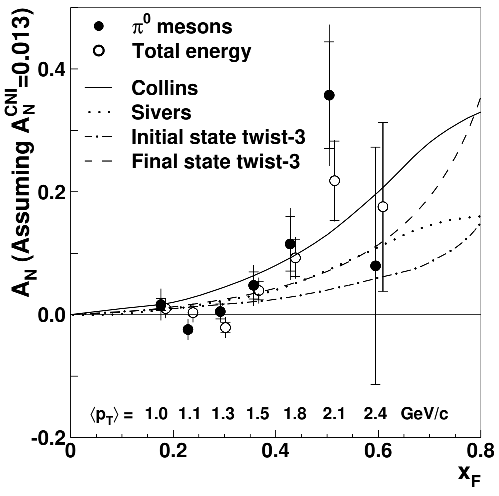


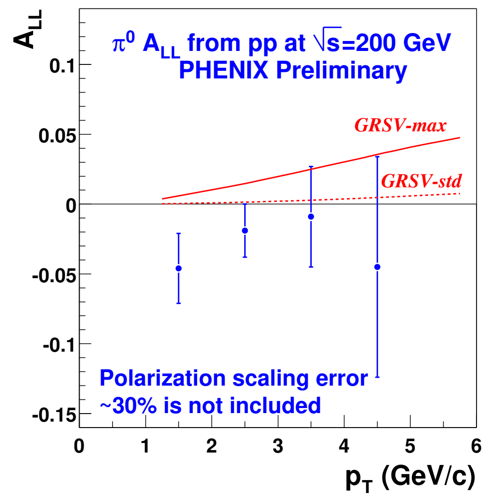
Lev Dmitrievich Soloviev (1934–2003)

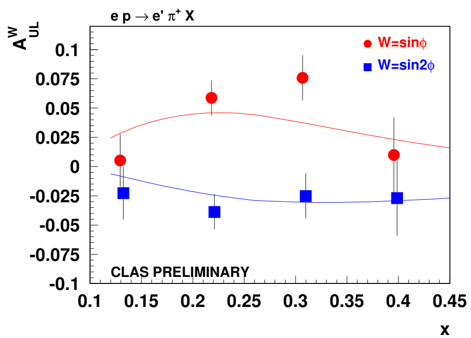
- Traditional since 1981,
- Enabled to discuss news collected for a year,
- Very important opportunity for big number of physicists from FSU and Eastern Europe to meet Western colleges,
- X ARW DUBNA-SPIN-03:
  - 96 participants:
    (JINR 38, Russia 19, USA 9, FSU 6, Western Europa 7, Easten Europe 7, Japan, China 4)
  - Programm: 26 Invited talks, 52 Original reports.
  - Sponsored by: Science Program of NATO,
    International Committee for Spin Physics Symposia,
    RFBR,
    JINR.

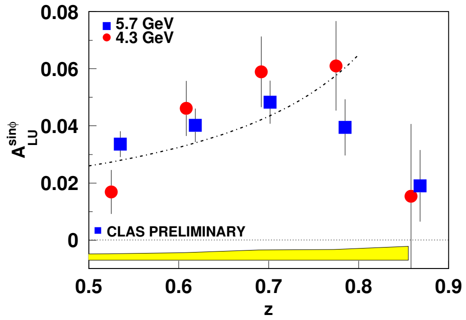
Lot of new experimental results and even more are expected!

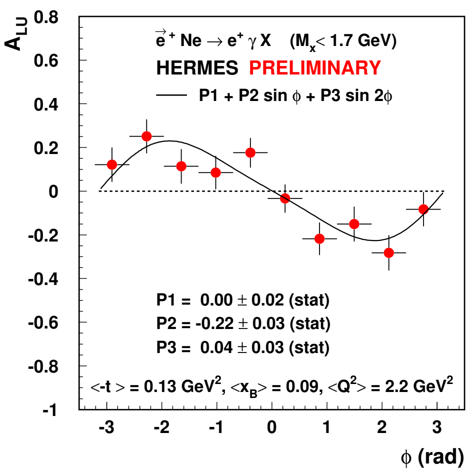
- Spin program at RHIC *(G. Bunce)*
  - STAR result on A_N in $p\!\uparrow p \to \pi^0 X$ *(L. Bland, S. Nurushev)*
  - PHENIX first result on A_{LL} *(A. Bazilevski)*
  - Results of engineering run of PP2PP *(I. Alekseev)*
  - Polarimetry at RHIC *(A. Bravar, O. Jinnouchi)*
- Spin program at JLab
  - CLAS azimuthal asymmetries A_{UL} and A_{LU} *(H. Avakian)*
  - Preliminary results for g_1^p/F_1^p and g_1^d/F_1^d and exclusive η and ρ electroproduction *(P. Bosted)*
- New results at HERMES *(H. Marukyan, A. Nagaitsev)*

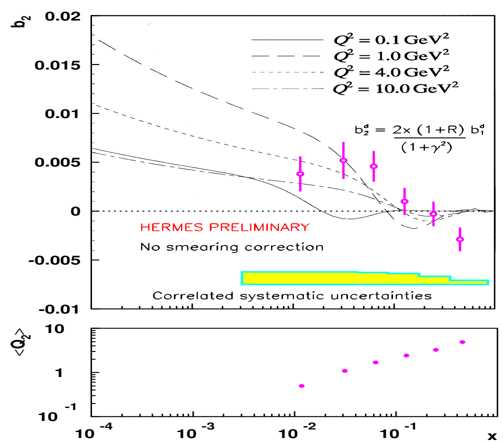




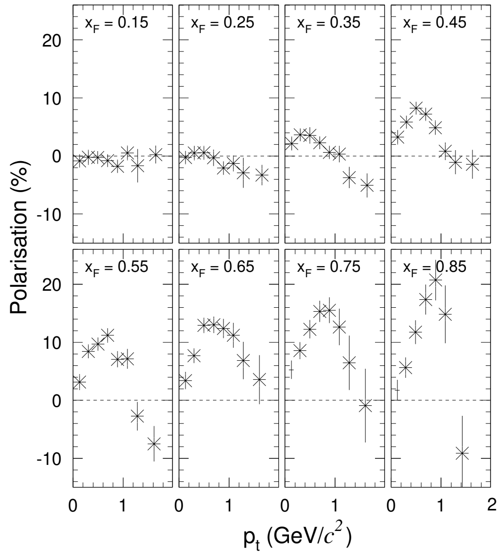


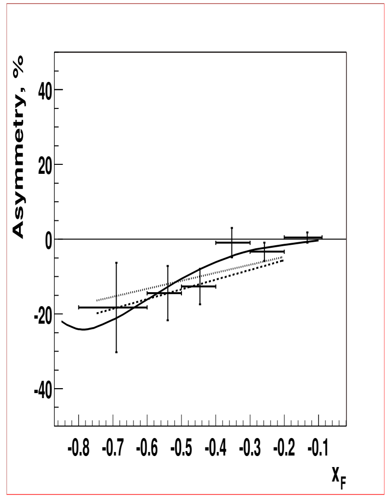


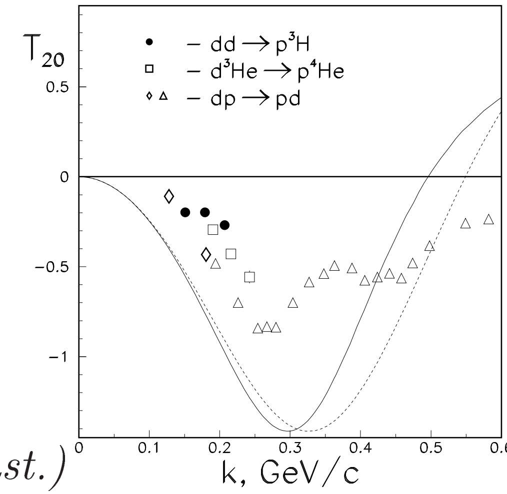


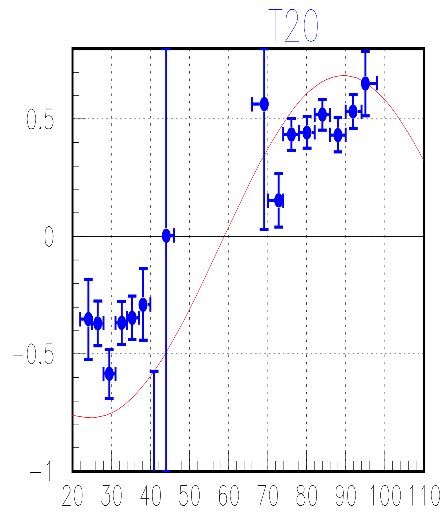


- Spin physics program at COMPASS *(F. Bradamante, J. Marroncle)*
  - First result: Preliminary data on Λ and $\bar{\Lambda}$ polarization *(M. Sapozhnikov)*
- Very interesting result of WA89 coll. on Λ polarization produced by Σ^- beam *(Yu. Alexandrov)*
- New result on A_N in $\pi^- p_\uparrow \to \pi^0 X$ and $pp_\uparrow \to \pi^0 X$ was presented by PROZA-M *(V. Mochalov)*
- Final data on tensor analyzing power T_{20} in the $\mathrm{dd} \to {}^3\mathrm{He}\,\mathrm{n}$ and $\mathrm{dd} \to {}^3\mathrm{Hp}$ of JINR-RIKEN collaboration. Disagree with the ONE with standard w.f. *(V. Ladygin)*
- and preliminary from d photo-disintegration *(D. Nikolenko, Budker Inst.)*
- Noticeable longitudinal longitudinal and transversal Λ polarization was reported by NOMAD *(A. Chukanov)*



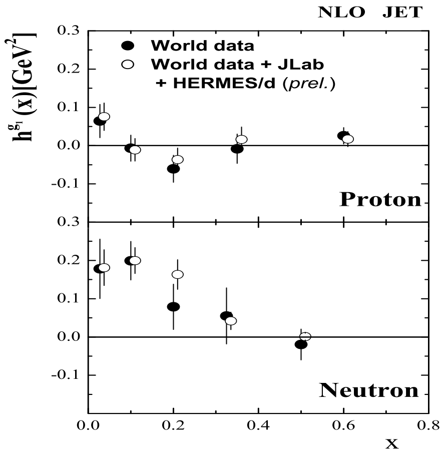


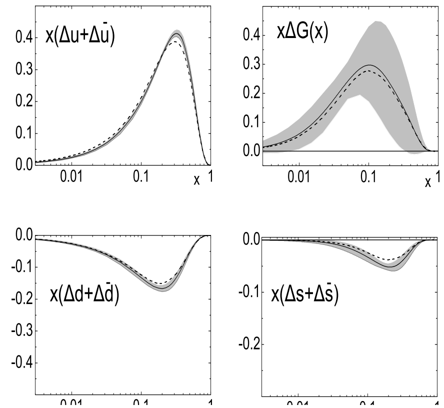




Some theoretical results

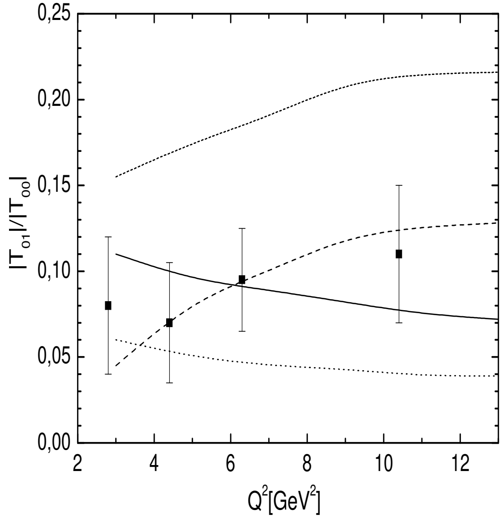
- Higher twist corrections to g_1 are non-negligible in QCD analysis of present data. Definitely positive ΔG. *(D. Stamenov)*



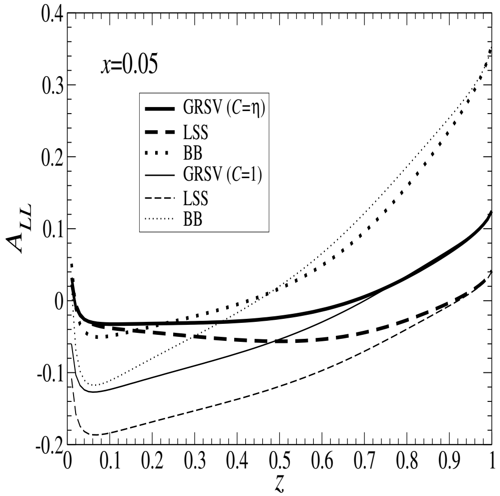


- Negative Δs supported by baryon magnetic moments analysis *(S. Gerasimov)*

- Important for vector meson diffractive photoproduction *(S. Goloskokov)*



- A_{LL} for charmed hadroproduction in SIDS is sensitive to Δs and ΔG *(K. Mawatari)*



- Summation of $\Sigma_n \alpha_s^n \log^{2n-1} x \to g_1 \sim x^{-\Delta}$ with $\Delta_S = 0.86$ and $\Delta_{NS} = 0.4$ *(B. Ermolaev)*

- GDH for parity violating amplitudes is proposed *(K. Kurek)*

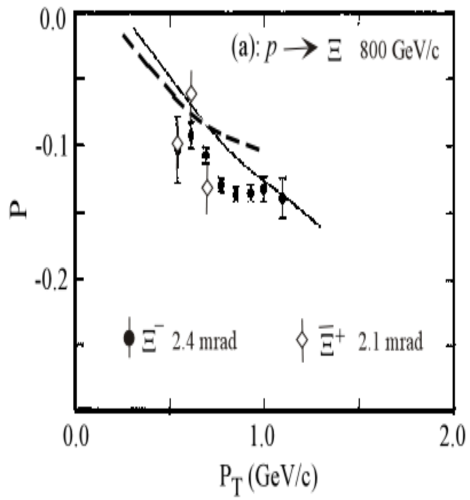
- Non-universality of T-odd PDF and universality of T-odd PFF. Special role of p_T moments *(A. Metz, O. Teryaev)*.

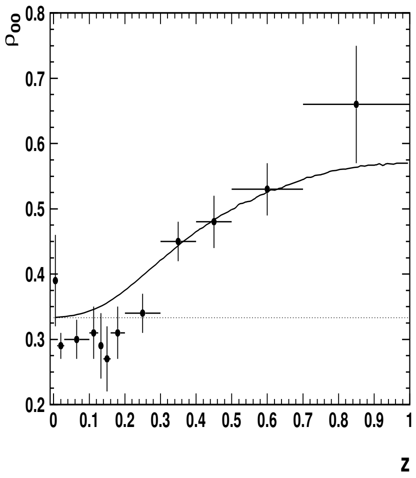
- NLO corrections to twist-3, $L \to T$, flavor non-singlet amplitude in DVCS. Factorization holds for this amplitude *(L. Mankiewicz)*. NLO vector meson electroproduction *(D. Ivanov)*.

- Prediction of remarkable transverse J/ψ polarization, if quark-gluon plasma if formed *(B.L. Ioffe)*.

- New results in quark rearrangement mechanisms. First *(as I know)* explanation of $\overline{\Xi}^+$ polarization *(K.-I. Kubo)*.

- Alignment of vector mesons in fragmentation of polarized and non-polarized quark *(Liang Zuo-tang)*





- Excellent review of density matrix formalism and positivity conditions for general multiple spin asymmetries *(X. Artru)*.
- A beautiful pedagogical introduction to physics of GPD's with a simple interpretation of the Sivers effect, in terms of the angular momentum of the flavour dipole *(M. Burkardt)*.
  (The best talk of Workshop, as noticed in Summary talk by F. Bradamante)

Proceedings of ARW, with talks and discussions, are send to all participants and International Committee Members.
Available from JINR Publishing Department
http://www1.jinr.ru/

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IS PLANNED IN SEPTEMBER 2005
IN DUBNA