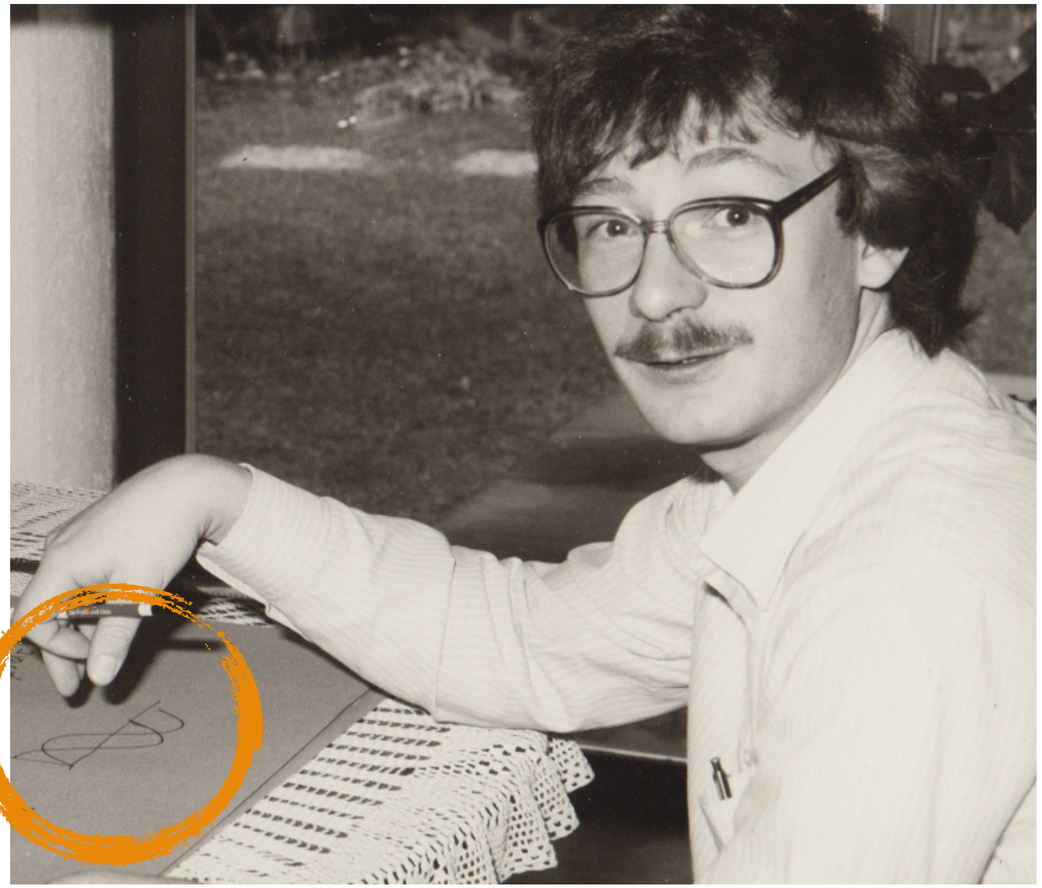
Gerd Mallot: A Scientific Career

Horchheim, Germany 1955

Aveiro, Portugal 2019

Gerd's Early Life

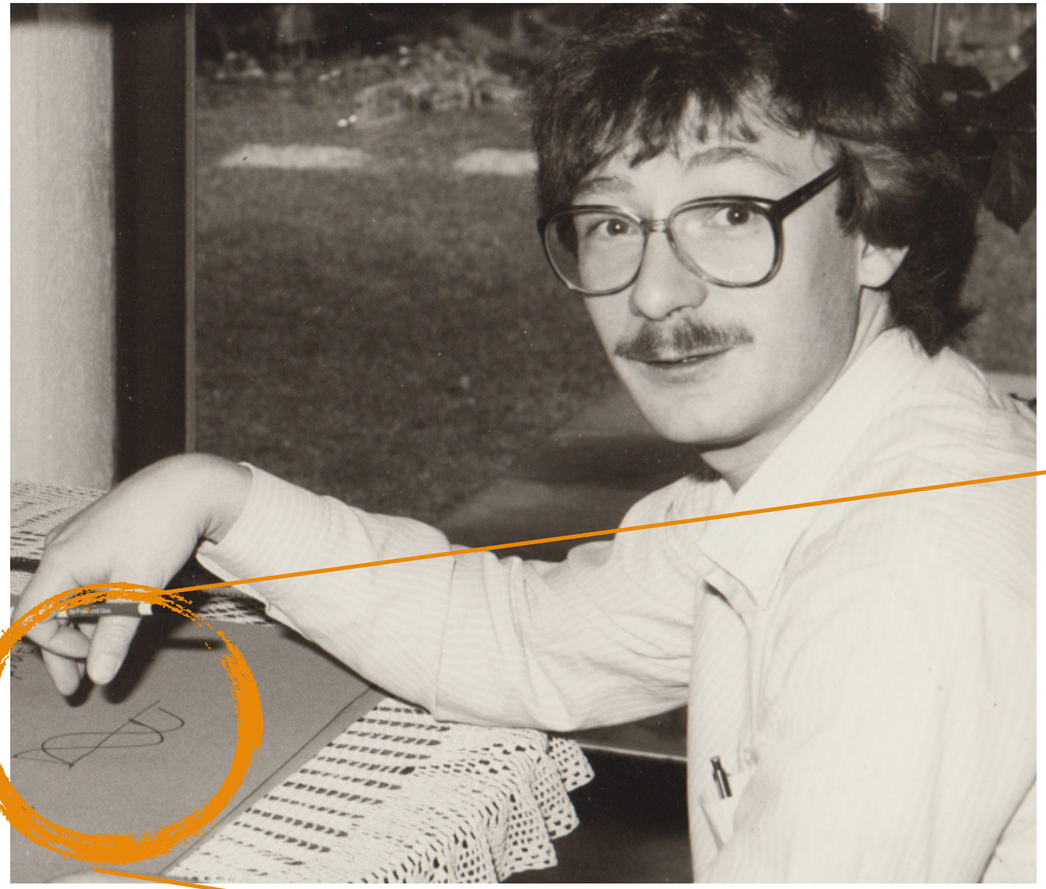
Gerd's Early Scientific Life



1973–1980: Study of Physics, Joh. Gutenberg–Universität Mainz, Germany
1980: Diploma in Physics (Muonic atoms at SIN/PSI), Fachbereich Physik, Universität Mainz
1984: PhD Univ. Mainz: Measurement of charge radii of germanium isotopes using elastic electron scattering and muonic atoms
1985: three month research at the Los Alamos National Laboratory, NM, USA
1984–1992: Assistent researcher at Inst. of Nuclear Physics, Mainz University
1985–1986: Research at MAMI A in Mainz

Mainz 1984

Gerd's Early Scientific Life



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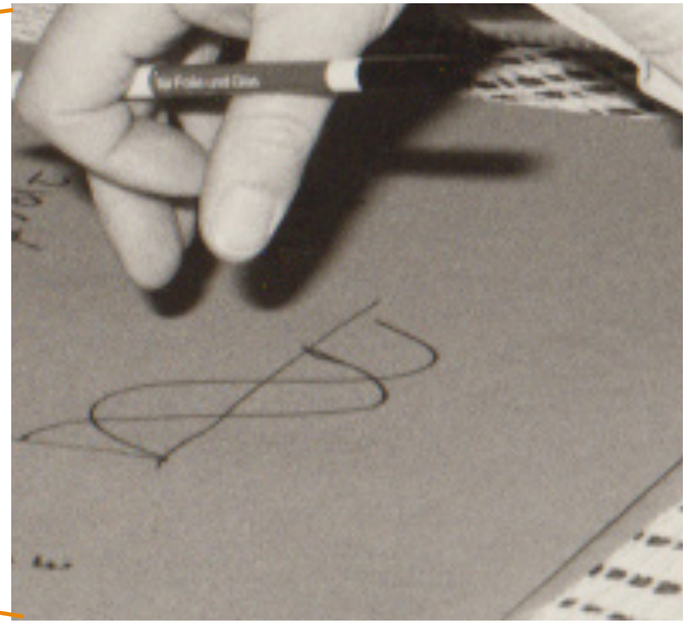


Mainz 1984

Gerd's Early Scientific Life

Gerd with his advisor (G.Fricke) at SIN

Already at those times:

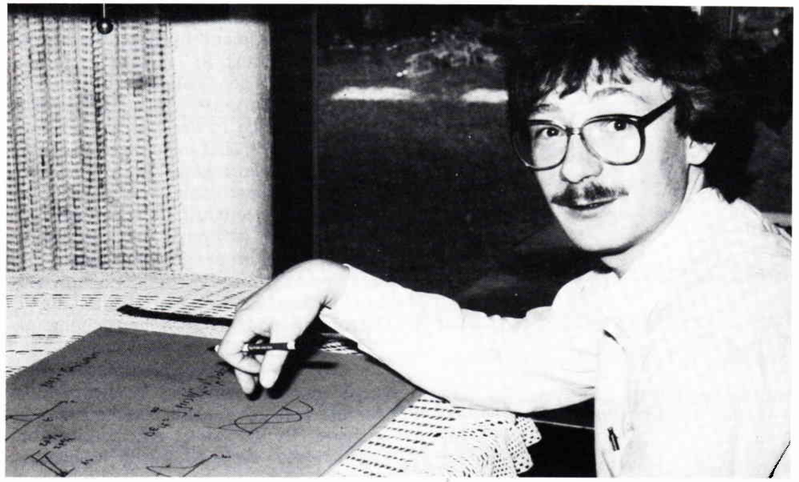
IT was high on his list: MalCal: in-line calculator

First Laurea's

Horchheimer Kirmeszeitung 1986
Horchheim fairground newspaper 1986

In der Welt des unendlich Kleinen

Die Doktor-Brüder Mallot.



PORTRÄT

nicht immer so gut aus. Nach dem Abitur 1973 wollte Gerhard den Dienst fürs Vaterland bei einer zivilen Dienststelle ableisten. „Die Stelle hatte ich schon fest. Um einen Studienplatz habe ich mich erst gar nicht beworben. Die Anerkennung als Verweigerer zog sich aber sehr lange hin. Im Oktober 1973, als die Einschreibefrist für die Uni längst abgelaufen war, habe ich mich doch noch um einen Studienplatz beworben. Sie haben mich genommen." Vom Ersatzdienst wurde er schließlich bis zur Promotion zurückgestellt, und „dann haben sie endgültig auf mich verzichtet". Nach der Hochzeit im Jahr 1981 zog Gerhard mit seiner Frau nach Nieder-Olm bei Mainz. Der stolze Familienvater: „Als Hobby habe ich meine Arbeit und vor allem meine Familie. Im Oktober 1984 wurde unsere Tochter geboren, und im Mai werde ich wieder Vater."
Pläne für die Zukunft? „Ich werde noch einige Zeit in der Forschung bleiben. Im Juli werde ich wahrscheinlich nach Genf gehen und dort im Kernforschungszentrum CERN drei Jahre bleiben. Wenn ich von CERN zurückkomme, werde ich überlegen müssen, ob ich in der Forschung bleibe oder in die Industrie überwechsele."

- ☆ PhD: Gerd obtained „summa cum laude"
- ☆ Sponsorship prize of Univ. Mainz
  Ceremenoy with speech of Bernhard Vogel
  (Prime Minister of Rhineland-Palatinate)

Plans for the future ? "I will stay in research for some time. In July, I will probably go to Geneva... and stay there at the CERN research centre for 3 years. When I come back from CERN, I will have to consider whether to stay in research.

Scientific work with NMC and SMC

Contributions:

- „Fastmon“ + online monitors
- μ Beam polarization
- Polarized target
- Physics Trigger
- Event reconstruction
- Data analysis
- Publications
- Proposal writing NA47

since 1986: Member of the New Muon Collaboration (NMC) at CERN
1990–1997: Member of the Spin Muon Collaboration (SMC) at CERN
1992–1993: Scientific Associate at CERN
1993–1997: Assistent researcher (Hochschulassistent) at Inst. of Nuclear Physics, Mainz University
1992–1994: Coordinator/contactperson of the SMC experiment NA47 at CERN

C
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CERN SPSLC
92-21

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CERN/SPSLC 92-21
SPSLC/M492

Date: 25 March 1992

MEMORANDUM

From/De : V.W. Hughes, G.K. Mallot/PPE-NA47 V. W. H, Gkl Mallot
To/à : A. Donnachie, chairman of the SPSLC
Subject/Sujet : NA38 proposal

In view of the new proposal of the NA38 group, we would like to discuss our schedule for the 1992 run and the implications of parallel running of SMC (NA47) with NA38.

1. **The Gottfried sum from the ratio F2(n) / F2(p)**
(640) New Muon Collaboration (P. Amaudruz *et al.*). Jan 1991. 10 pp.
Published in **Phys.Rev.Lett. 66 (1991) 2712-2715**
CERN-PPE-91-05
DOI: 10.1103/PhysRevLett.66.2712
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; OSTI.gov Server
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 640 Datensätzen 500+

2. **Measurement of the proton and deuteron structure functions F2(p) and F2(d), and of the ratio sigma-L / sigma-T**
(634) New Muon Collaboration (M. Arneodo (INFN, Turin & Turin U.) *et al.*). Oct 1996. pp.
Published in **Nucl.Phys. B483 (1997) 3-43**
DOI: 10.1016/S0550-3213(96)00538-X
e-Print: hep-ph/9610231 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
ADS Abstract Service; CERN Document Server
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 634 Datensätzen 500+

3. **Measurement of the spin dependent structure function g1(x) of the deuteron**
(619) Spin Muon Collaboration (B. Adeva *et al.*). Mar 1993. 10 pp.
Published in **Phys.Lett. B302 (1993) 533-539**
CERN-PPE-93-47
DOI: 10.1016/0370-2693(93)90438-N
Prepared for CERN SMC Meeting on Internal Spin Structure of Conference: C94-05.1, p.386-392 Proceedings
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; CERN Document Server
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 619 Datensätzen 500+

4. **Measurement of the spin dependent structure function $g_1(x)$ of the proton**
(582) Spin Muon (SMC) Collaboration (D. Adams *et al.*). Apr 1994. 11 pp.
Published in **Phys.Lett. B329 (1994) 399-406**, Erratum: **Phys.Lett. B339 (1994) 332-333**
DAPNIA-94-04, CERN-PPE-94-57, CERN-PPE-94-057
DOI: 10.1016/0370-2693(94)90793-5, 10.1016/0370-2693(94)90629-7
e-Print: hep-ph/9404270 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 582 Datensätzen 500+

5. **A Reevaluation of the Gottfried sum**
(565) New Muon Collaboration (M. Arneodo *et al.*). Feb 1994. 5 pp.
Published in **Phys.Rev. D50 (1994) R1-R3**
CERN-PPE-94-32, CERN-PPE-94-032, CERN-PPE-93-117
DOI: 10.1103/PhysRevD.50.R1
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; OSTI.gov Server
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 565 Datensätzen 500+

6. **The COMPASS experiment at CERN**
(557) COMPASS Collaboration (P. Abbon (SPhN, DAPNIA, Saclay) *et al.*). Jan 2007. 84 pp.
Published in **Nucl.Instrum.Meth. A577 (2007) 455-518**
CERN-PH-EP-2007-001
DOI: 10.1016/j.nima.2007.03.026
e-Print: hep-ex/0703049 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Details des Eintrags - Zitiert von 557 Datensätzen 500+

How COMPASS begun

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN/SPSLC/96–14
SPSLC/P297
1 March 1996

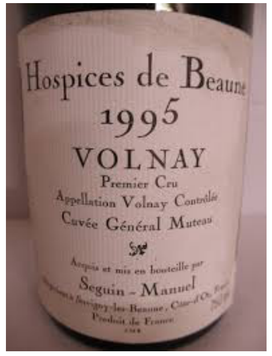
COMPASS

A PROPOSAL FOR A

COMMON
MUON and
PROTON
APPARATUS for
STRUCTURE and
SPECTROSCOPY

1995 at CERN

1995 at CERN



CERN European Organization for Nuclear Research

1995: first observation of antihydrogen

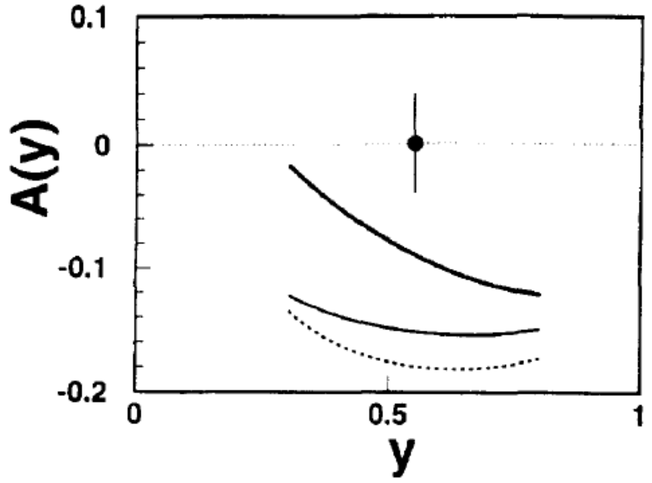
In September 1995, a team led by Walter Oelert created atoms of antihydrogen for the first time at CERN's Low Energy Antiproton Ring (LEAR) facility. Nine of these atoms were produced in collisions between antiprotons and xenon atoms over a period of three weeks. Each one remained in existence for about forty billionths of a second, travelled at nearly the speed of light over a path of ten metres and then annihilated with ordinary matter. The annihilation produced the signal that showed that the anti-atoms had been created.

This was the first time that antimatter particles had been brought together to make complete atoms, and the first step in a programme to make detailed measurements of antihydrogen.

The hydrogen atom is the simplest atom of all, made of a single proton orbited by an electron. Some three quarters of all the ordinary matter in the Universe is hydrogen, and the hydrogen atom is one of the best understood systems in physics. Comparison with antihydrogen offers a route to understanding the matter–antimatter asymmetry in the Universe.

Precursor: HMC

charm asymmetries



$$\delta\left(\frac{\Delta G}{G}\right) \approx 0.15$$

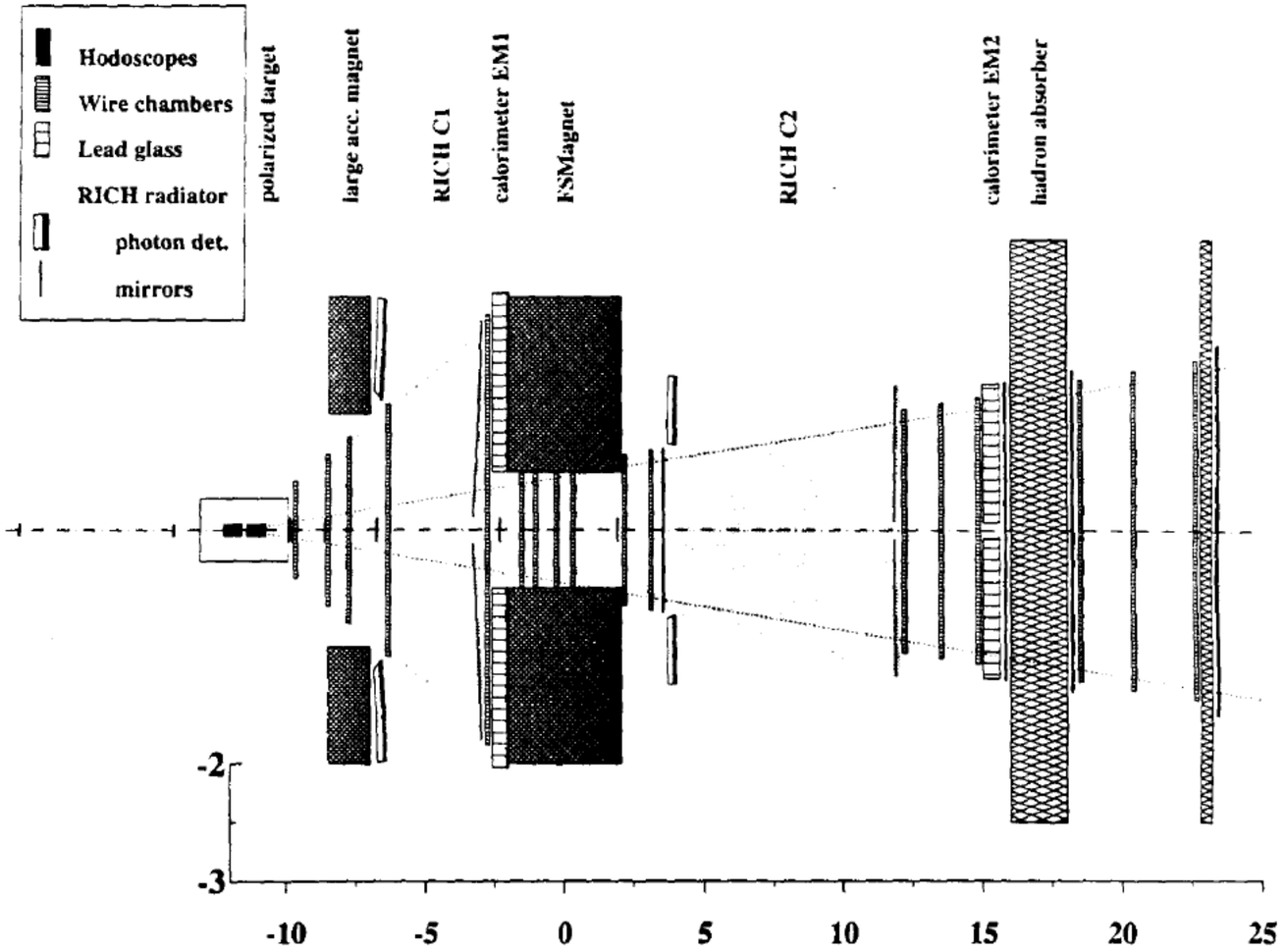
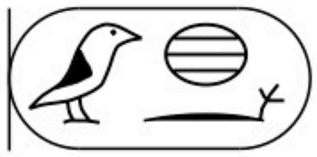
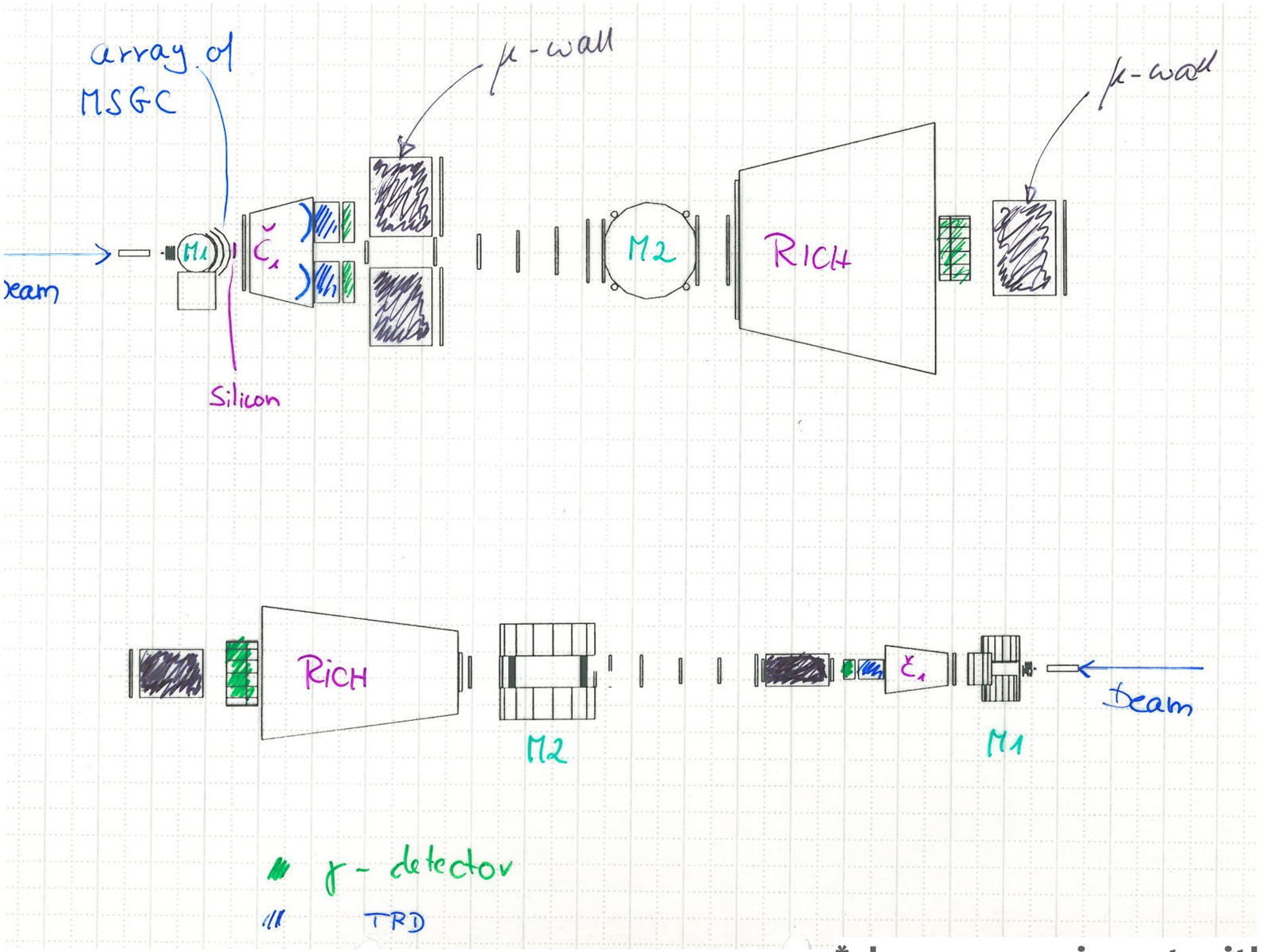


Figure 18: Proposed spectrometer for the new experiment.

Precursor: CHEOPS*



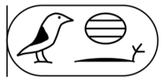
1995



*charm experiment with omni-purpose setup

The Double Headed Hydra

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH



CERN/SPSLC 95-22
SPSLC/I202
March 28, 1995

LoI

CHEOPS

CHarm Experiment with Omni-Purpose Setup

**Bristol-Freiburg-Heidelberg-Hamburg-Jülich-Tsukuba*-
Melbourne-Moscow-Protvino-Rutgers-Sydney-Tel Aviv-Torino**

CHEOPS

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

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CERN SPSLC
95-27

CERN/SPSLC 95-27
SPSC/I 204
March 28, 1995

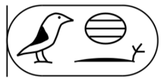
Letter of Intent

SEMI-INCLUSIVE MUON SCATTERING FROM A POLARISED TARGET

HMC

The Double Headed Hydra

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH



CERN/SPSLC 95-22
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CERN/SPSLC 95-27
SPSC/I 204
March 28, 1995

Letter of Intent

SCP
CERN SPSLC
95-27

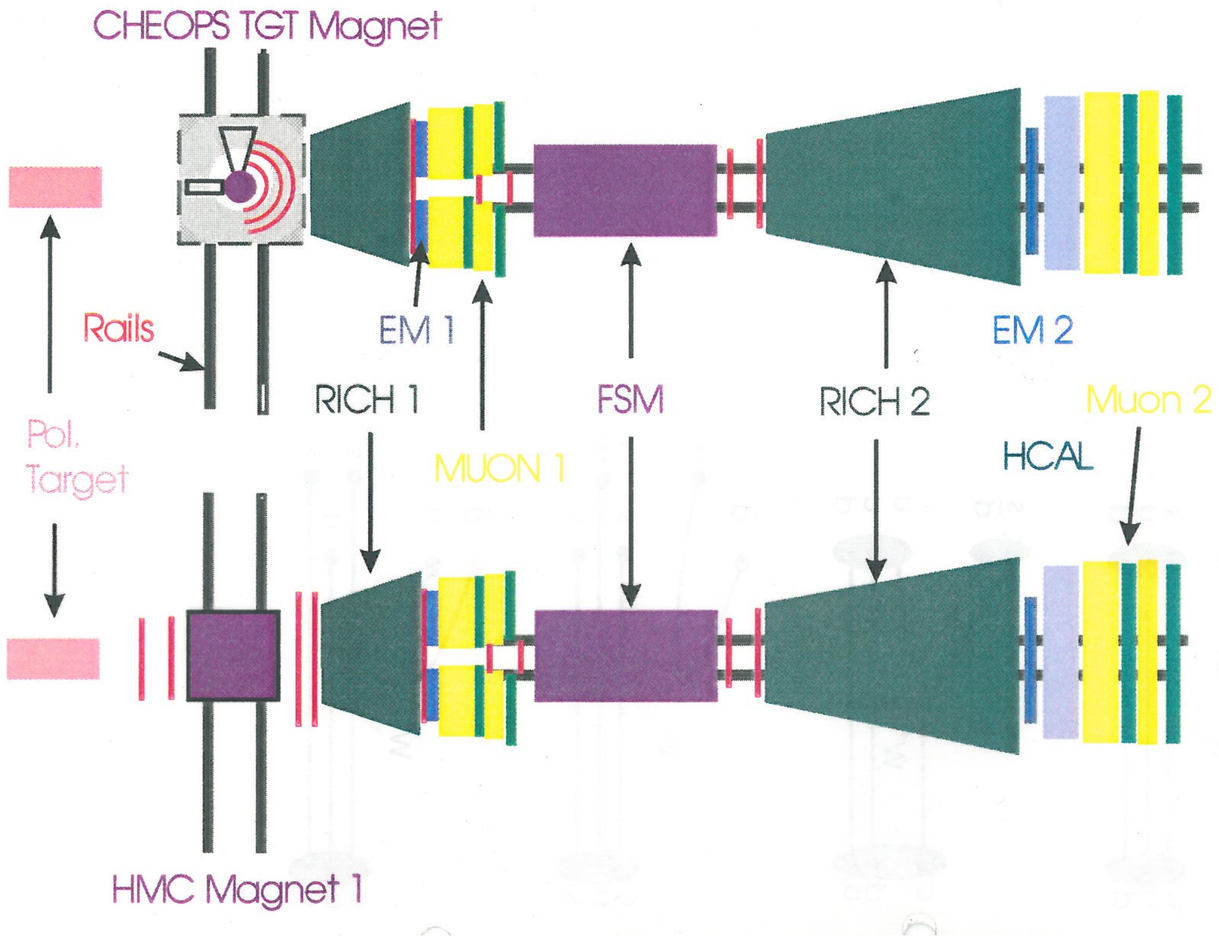
SEMI-INCLUSIVE MUON SCATTERING FROM A POLARISED TARGET

CHEOPS

Two Competing Proposals
After submitting Gerd and Stephan jointly went to Burgundy with their families

HMC

COMPASS: The Becoming



COMPASS: The Merger

Minutes of the 'HMC' Meeting held at CERN on Friday, November 3, 1995

A working group consisting of S. Paul, E. Chudakov, and A. Stingkowski from Cheops and F. Bradamante and G. Mallot from our collaboration worked out a common draft schedule. Based on the expectation that the electromagnetic calorimeters would become operational first and that the RICHes would be available only later, the following scenario was proposed assuming a start in 1998.

1998	first half		*test* of apparatus
	second half	Cheops	*meson* spectroscopy with liquid hydrogen target
1999	first half	HMC	*gluon* with polarized target
	second half	Cheops	*charm production*
2000		HMC	*gluon*
2001	first half	HMC	*gluon*
	second half	Cheops	*charm*

The basic idea was that the statistics should be sufficient to extract first physics results after the running in 2001. The full programme will require about 10 years. After a discussion the collaboration accepted this draft schedule as basis for further discussions with Cheops.

CHEOPS: November 6th 1995

Time sharing :

proposed scenario for discussion :

1st year : technical tests
physics runs with incomplete detector (no RICH):
1/2 yr of central production
some time for Primakoff

2nd year : 1/2 yr of muons
1/2 yr of charm

3rd year : 1 yr of muons

4th year : 1/2 yr of muons
1/2 yr of charm

further program determined by physics outcome !

*

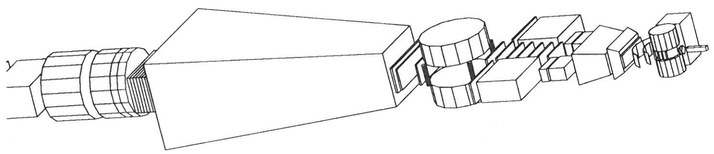
(such a scenario accepted by HMC collaboration)

* Predictions on the future are difficult

Discussion within CHEOPS and HMC

Agenda for CHEOPS meeting 6th of November '95

1. Presentation of results from discussion with HMC
2. Discussion
3. Status of electromagnetic calorimetry
   drift tubes for 1st μ-wall
4. Discussion on a joint workshop on physics with CHEOPS and HMC
5. What to do for a proposal ?
6. Status of the collaboration
7. Next meeting



Electromagnetic calorimetry:

HMC and CHEOPS need 2 e.m calorimeters
HMC needs larger first detector

See presentation by A. Singovski

Particle Identification :

1. HMC **and** CHEOPS need excellent and fast PID over large momentum range
2. HMC needs high granularity and proposes RICH with Cs photocathode a la Hera-B, or HADES

Flexibility :

CHEOPS proposes to put set up on rails.

1st magnet : to allow use of two different magnets
2nd magnet to allow flexible decay areas
Estimated costs : 50 Ksfr / system

The First Joint Meeting

Tentative Agenda
First CHEOPS/HMC joint meeting
at CERN
Monday 18. – Tuesday 19. December, 1995

Monday:		Building 6 2-024 (PS auditorium)
9:15	*D. von Harrach*	Welcome
9:30	*S. Paul, E. Chudakov, H. Siebert*	Charm I
10:15	Coffee	
10:45	*S. Paul*	Charm II
11:30	*G. Mallot*	Status of the nucleon spin puzzle
12:15	*D. von Harrach*	Gluon polarisation Delta G

The Agreement: COMPASS

REPORT from the GROUP LEADERS' MEETING

(Tuesday, Dec. 19, 1995, 9:15 - 13:15)

Present :

Dubna	G.	Smirnov
Freiburg	H.	Fischer
Heidelberg, Univ.	H.	Siebert
IHEP, Protvino	S.	Singovsky
IHEP, Protvino	I.	Khokhlov
ISN , Bruxelles	J.P.	Stroot (part time)
KFA, J\"ulich	K.	R\"ohrich
KEK	T.	Tsuru
Mainz	D.	von Harrach, G. Mallot
MPI, Heidelberg	S.	Paul
Moscow, Univ.	E.	Chudakov
NIKHEF	T.	Ketel
Prague	M.	Finger
Saclay	A.	Magnon
Tel Aviv	M.	Moinester
Trieste	F.	Bradamante
Turin	A.	Maggiora
(Cagliari	S.	Serci Observer)

Unanimous consensus was obtained that a common proposal will be formulated and submitted to CERN, covering the physics issues of the two Letters of Intent.

The following points were agreed upon:

* The responsibilities of the various Institutes for Equipments, running budget, and shifts are to be taken for all planned experiments However, it was acknowledged, that difficulties in the constant support for equipment may arise. Means have to be found to accommodate for such difficulties to guarantee a smooth operation of the experiment through its various phases.

* The proposal will detail mostly the physics program which can be covered in the first four years after the experiment is set up and debugged. For this period of time the beam will be shared between muon and hadron physics respecting an integral 50-50 share.

* The physics issues foreseen for the proposal are

CENTRAL PRODUCTION	GLUON POLARIZATION
CHARM	LONGITUDINAL SPIN
PRIMAKOV SCATTERING	TRANSVERSITY

* In the proposal mention will be made of the foreseen future program, without technical details. It will be stressed that the full program originally foresaw 4 + n years of data taking.

* The continuation of the program beyond the initial four years will be discussed in due time inside the collaboration, taking into account the physics results and the evolution of physics cases themselves. Very likely it will be necessary to submit to CERN Addenda to the original Proposal.

It was also unanimously felt that it was important to proceed fast with the writing of the Proposal and possibly to submit it in time for the next SPSLC Meeting, which is scheduled for March 26. The dead-line for handing in the proposal is March 4. To meet this dead-line it was decided to start this work immediately, according to the following time-table :

Dec. 20 - 21	definition of tasks
Jan. 31	circulation of DRAFT # 1
Feb. 2 (or 5)	COLLABORATION MEETING

A second draft of the Proposal will then be circulated around Feb 23 and the final editing will be done in the week starting on Feb.26.

Last but not least, there is an urgent need to find a name for the newly born COLLABORATION.

F. Bradamante OR G. Mallot S. Paul

COMPASS: Scientific Approval

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN/SPSLC/96–14
SPSLC/P297
1 March 1996

COMPASS

A PROPOSAL FOR A

COMMON MUON and PROTON APPARATUS for STRUCTURE and SPECTROSCOPY

COMPASS: Scientific Approval

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CERN/SPSLC/96-14
SPSLC/P297
1 March 1996

COMPASS

A PROPOSAL FOR A

COMMON
MUON and
PROTON
APPARATUS for
STRUCTURE and
SPECTROSCOPY

SPS AND LEAR EXPERIMENTS COMMITTEE

Decisions taken at the 30th meeting on 10 September 1996

9. Other reports from the referees:

9.1 COMPASS

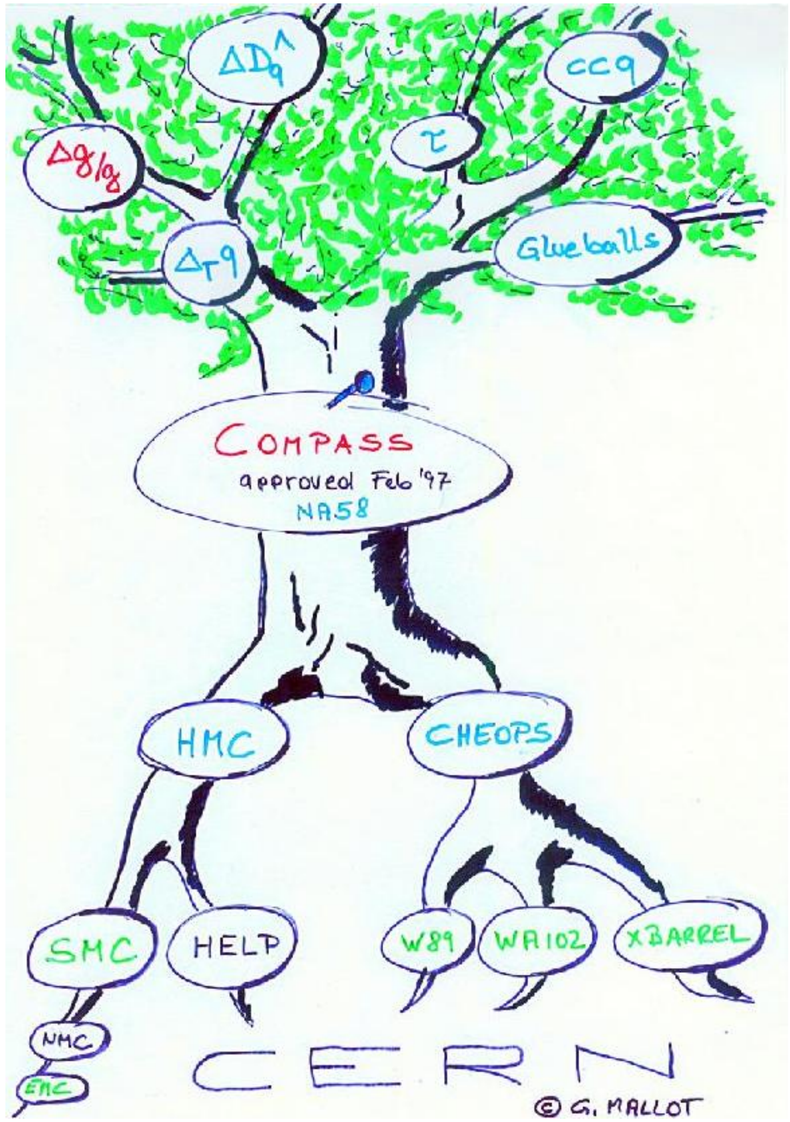
The assessment of the physics potential of COMPASS was summarized by the referees. The goals of the Deep Inelastic Muon scattering part were felt clear and of great interest. In hadronic physics, the experiment should be excellent for the search for gluonic states in central production as well as in Primakoff type reactions. The possible determination of f_{Ds} and first measurement of f_D were appreciated. The contributions to charm baryon spectroscopy require elaborate Monte Carlo studies in the detector to be fully evaluated.

On the experimental side, the work done in the last months had shown the feasibility of the apparatus. Reasonable compromizes or fallback solutions were demonstrated possible for the items previously estimated critical.

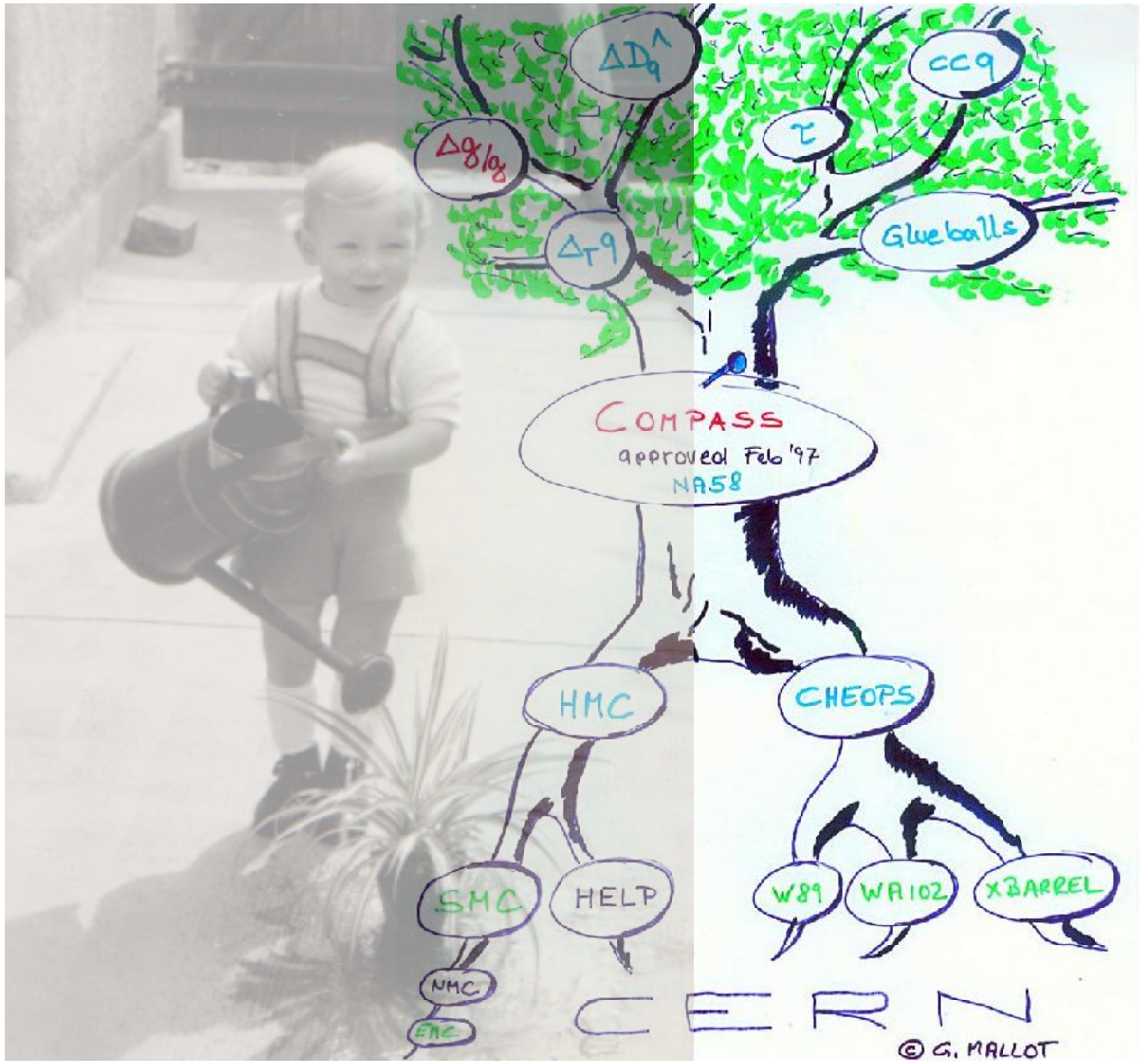
Milestones will be defined at the one year level in order to freeze the final technical choices and quantify the physics objectives by the detailed study of several specific channels.

The committee recommended the approval of the experiment and will report to the Research Board as soon as the financial situation is clarified.

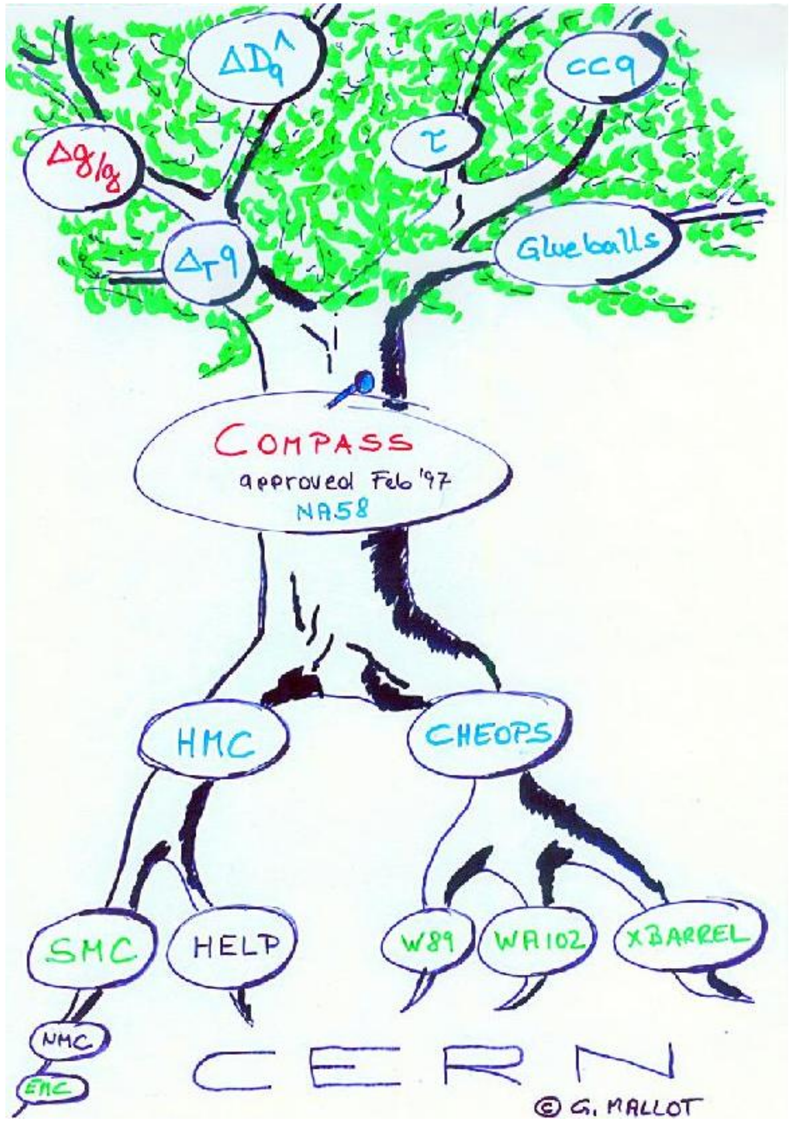
COMPASS - Scientific Program



COMPASS - Scientific Program



COMPASS - Scientific Program



The last 23 years

1997:	Habilitation (SMC), Fachbereich Physik, Universität Mainz,
since 1997:	CERN staff member, tenure (senior physicist) since 2002
1998–2003:	Technical coordinator for COMPASS, installation, commissioning and first data taking of COMPASS
since 1998:	Resource Coordinator and GLIMOS (group leader in matters of safety)
2003–2010:	Cospokesperson of COMPASS with A. Magnon/Saclay Preparation of COMPASS Phase II (Proposal approved 2010)
2005–2013:	Member of the "International Committee for Spin Physics Symposia"
2015-2017:	Co-spokesperson of COMPASS with Oleg Denisov/Torino

a typical COMPASS collaboration meeting

Erlangen 2013

Additional Academic Grade 1997

Nagoya 1992

The Spin Structure of the Nucleon
from the SMC Experiments

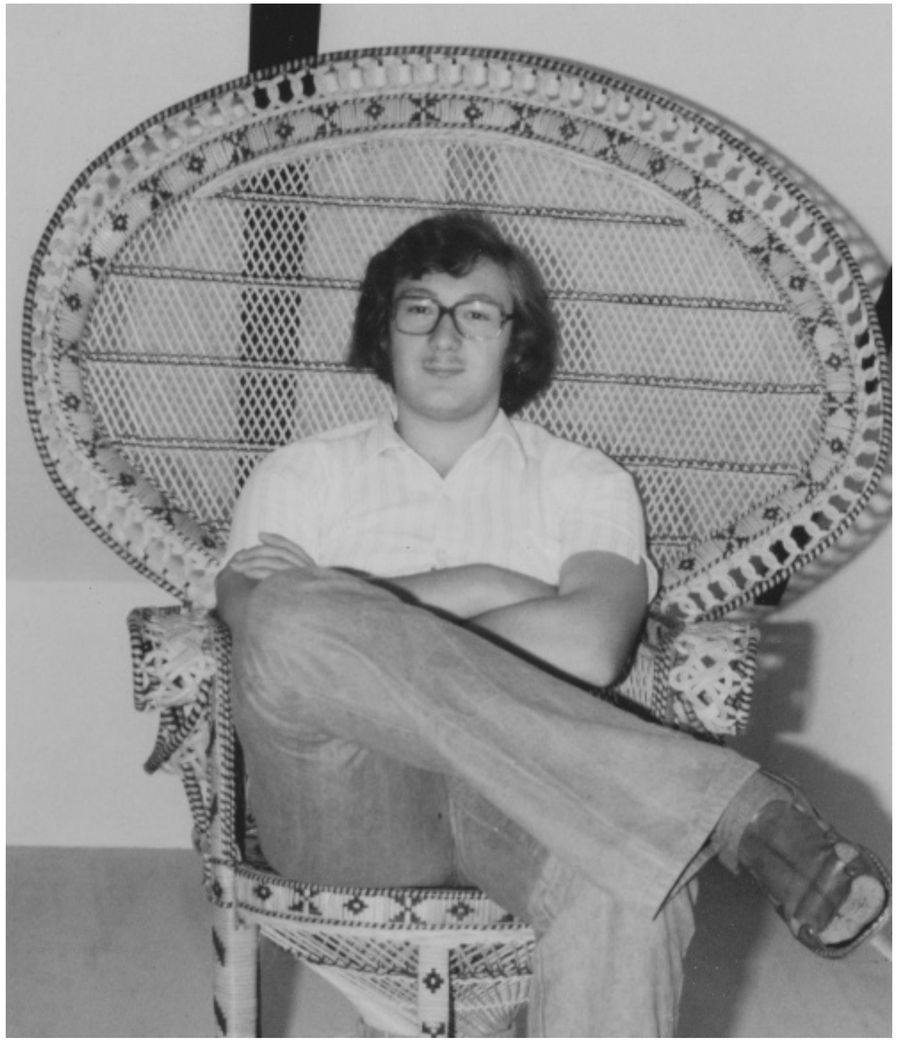
Habilitationsschrift
zur Erlangung der *venia legendi*

eingereicht bei dem Fachbereich Physik (18)
der Johannes Gutenberg-Universität
in Mainz

1996

Career

- in 2003 Gerd became Co-spokesperson of COMPASS



- in 2007 Gerd became CD

COMPASS: Gerds Baby

In the 23 years to come, Gerd played a key role in COMPASS

- Technical coordinator
- Contact person
- Finance officer
- Spokesperson (multiple)
- CERN link person

- Care catcher
- and now: COMPASS Grandpa

Trieste 2004 - Spin

COMPASS: Gerds Baby

In the 23 years to come, Gerd played a key role in COMPASS

- Technical coordinator
- Contact person
- Finance officer
- Spokesperson (multiple)
- CERN link person

- Care catcher
- and now: COMPASS Grandpa

Trieste 2004 - Spin

Gerd served as

- Shifter
- Shift leader
- Period coordinator
- PubCom member and leader
- GLB member and leader
- Paper author
- Speaker on conferences/workshop and IAC member

Science

- Key contributions to ΔG/G
- Member of many drafting committees
- Very active in discussions on analysis and statistical methods
- And always active in IT: Excel in Tex

1. **The COMPASS experiment at CERN**
(557) COMPASS Collaboration (P. Abbon (SPhN, DAPNIA, Saclay) *et al.*). Jan 2007. 84 pp.
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DOI: 10.1016/j.nima.2007.03.026
e-Print: hep-ex/0703049 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Details des Eintrags - Zitiert von 557 Datensätzen 500+

2. **First measurement of the transverse spin asymmetries of the deuteron in semi-inclusive deep inelastic scattering**
(394) COMPASS Collaboration (V.Yu. Alexakhin (Dubna, JINR) *et al.*). Feb 2005. 9 pp.
Published in **Phys.Rev.Lett. 94 (2005) 202002**
CERN-PH-EP-2005-003, DAPNIA-05-17
DOI: 10.1103/PhysRevLett.94.202002
e-Print: hep-ex/0503002 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext; Fermilab Library Server
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 394 Datensätzen 250+


Trieste 2004 - Spin

3. **The Deuteron Spin-dependent Structure Function g1(d) and its First Moment**
(367) COMPASS Collaboration (V.Yu. Alexakhin (Dubna, JINR) *et al.*). Sep 2006. 16 pp.
Published in **Phys.Lett. B647 (2007) 8-17**
DAPNIA-06-234, CERN-PH-EP-2006-029
DOI: 10.1016/j.physletb.2006.12.076
e-Print: hep-ex/0609038 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 367 Datensätzen 250+

4. **Collins and Sivers asymmetries for pions and kaons in muon-deuteron DIS**
(316) COMPASS Collaboration (M. Alekseev (Turin U.) *et al.*). Feb 2008. 14 pp.
Published in **Phys.Lett. B673 (2009) 127-135**
IRFU-08-15, CERN-PH-EP-2008-002
DOI: 10.1016/j.physletb.2009.01.060
e-Print: arXiv:0802.2160 **[hep-ex]** | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 316 Datensätzen 250+

5. **A New measurement of the Collins and Sivers asymmetries on a transversely polarised deuteron target**
(316) COMPASS Collaboration (E.S. Ageev *et al.*). Sep 2006. 40 pp.
Published in **Nucl.Phys. B765 (2007) 31-70**
DAPNIA-06-341, CERN-PH-EP-2006-031, CERN-PH-EP_2006-031
DOI: 10.1016/j.nuclphysb.2006.10.027
e-Print: hep-ex/0610068 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 316 Datensätzen 250+

6. **The Spin Structure of the Nucleon**
(271) Christine A. Aidala (Michigan U.), Steven D. Bass (Innsbruck U.), Delia Hasch (Frascati), Gerhard K. Mallot (CERN). Sep 2012. 43 pp.
Published in **Rev.Mod.Phys. 85 (2013) 655-691**
DOI: 10.1103/RevModPhys.85.655
e-Print: arXiv:1209.2803 **[hep-ph]** | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service
Details des Eintrags - Zitiert von 271 Datensätzen 250+

7. **Measurement of the Collins and Sivers asymmetries on transversely polarised protons**
(223) COMPASS Collaboration (M.G. Alekseev (INFN, Turin) *et al.*). May 2010. 9 pp.
Published in **Phys.Lett. B692 (2010) 240-246**
CERN-PH-EP-2010-013
DOI: 10.1016/j.physletb.2010.08.001
e-Print: arXiv:1005.5609 **[hep-ex]** | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 223 Datensätzen 100+

8. **Gluon polarization in the nucleon from quasi-real photoproduction of high-p(T) hadron pairs**
(197) COMPASS Collaboration (E.S. Ageev *et al.*). Oct 2005. 10 pp.
Published in **Phys.Lett. B633 (2006) 25-32**
CERN-PH-EP-2005-049, DAPNIA-05-297
DOI: 10.1016/j.physletb.2005.11.049
e-Print: hep-ex/0511028 | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service; Link to Fulltext
Details des Eintrags - Zitiert von 197 Datensätzen 100+

9. **Quark helicity distributions from longitudinal spin asymmetries in muon-proton and muon-deuteron scattering**
(172) COMPASS Collaboration (M.G. Alekseev (INFN, Turin) *et al.*). Jul 2010. 13 pp.
Published in **Phys.Lett. B693 (2010) 227-235**
CERN-PH-EP-2010-023
DOI: 10.1016/j.physletb.2010.08.034
e-Print: arXiv:1007.4061 **[hep-ex]** | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service
Details des Eintrags - Zitiert von 172 Datensätzen 100+

10. **The Spin-dependent Structure Function of the Proton g_1^p and a Test of the Bjorken Sum Rule**
(164) COMPASS Collaboration (M.G. Alekseev (INFN, Turin) *et al.*). Jan 2010. 12 pp.
Published in **Phys.Lett. B690 (2010) 466-472**
CERN-PH-EP-2010-001
DOI: 10.1016/j.physletb.2010.05.069
e-Print: arXiv:1001.4654 **[hep-ex]** | PDF
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service
Data: INSPIRE | HepData
Details des Eintrags - Zitiert von 164 Datensätzen 100+

11. **COMPASS-II Proposal**
(160) COMPASS Collaboration (F Gautheron (Ruhr U., Bochum) *et al.*). May 17, 2010. 125 pp.
SPSC-P-340, CERN-SPSC-2010-014
References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; Link to Fulltext
Details des Eintrags - Zitiert von 160 Datensätzen 100+

Science - Gluon Polarization

ΔG/G with Charm was measured:

- Key to the COMPASS proposal (golden channel)
- but never highlight of the COMPASS citation index

$$\langle \Delta g/g \rangle^{\mathrm{NLO}} = -0.13 \pm 0.15\ (\mathrm{stat.}) \pm 0.15\ (\mathrm{syst.})$$

Proposal:

δ(ΔG/G) = 0.11

physics relevance with ΔG/G ≈ 1

Leading and Next-to-Leading Order Gluon Polarization in the Nucleon and Longitudinal Double Spin Asymmetries from Open Charm Muoproduction

COMPASS Collaboration (C. Adolph (Erlangen - Nuremberg U.) *et al.*). Nov 2012. 22 pp.
Published in **Phys.Rev. D87 (2013) no.5, 052018**
CERN-PH-EP-2012-350
DOI: 10.1103/PhysRevD.87.052018
e-Print: **arXiv:1211.6849 [hep-ex]** | **PDF**

References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service

Details des Eintrags - Zitiert von 70 Datensätzen 50+

Gluon polarisation in the nucleon and longitudinal double spin asymmetries from open charm muoproduction

COMPASS Collaboration (M. Alekseev (Piemonte Orientale U., Alessandria & INFN, Turin) *et al.*). Apr 2009. 16 pp.
Published in **Phys.Lett. B676 (2009) 31-38**
DOI: 10.1016/j.physletb.2009.04.059
e-Print: **arXiv:0904.3209 [hep-ex]** | **PDF**

References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
CERN Document Server; ADS Abstract Service

Details des Eintrags - Zitiert von 70 Datensätzen 50+

Gluon polarization and associated charm production: Experimental aspects

G.K. Mallot (CERN). 1999. 2 pp.
Published in **J.Phys. G25 (1999) 1539-1540**
DOI: 10.1088/0954-3899/25/7/344
Prepared for Conference: C98-09-20 Proceedings

References | BibTeX | LaTeX(US) | LaTeX(EU) | Harvmac | EndNote
ADS Abstract Service; CERN Document Server

Details des Eintrags - Zitiert von 4 Datensätzen

Future Science ?

Future Science ?

- COMPASS aims at measuring the proton radius using elastic scattering μ-p at 100 GeV beam energy (waiting for approval)
- Aim: provide additional scattering data at small and very small Q^2
  - low radiative corrections
  - low multiple scattering
  - different systematics from PRAD (ep), MUSE (ep, μp) and MAMI (ep) scattering at very low beam energies (hundreds of MeV)
- Resolve discrepancies among scattering data
- Resolve discrepancy with muonic atoms

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Gerd Mallot: Diploma in Physics (Muonic atoms at SIN/PSI),

Ph.D. (Elastic electron scattering combined with muonic atoms),

close the circle of life

COMPASS: Gerds Family

In the 23 years to come, Gerd played a key role in COMPASS

- Party organizer and wine supplier

+


CERN
GOOD BYE
Welcome to Crozet - Your retirement home

Thanks for Everything

We wish you a great „Retirement“ and many more shifts with COMPASS

Aravis 2014

Jordan/Israel 2008