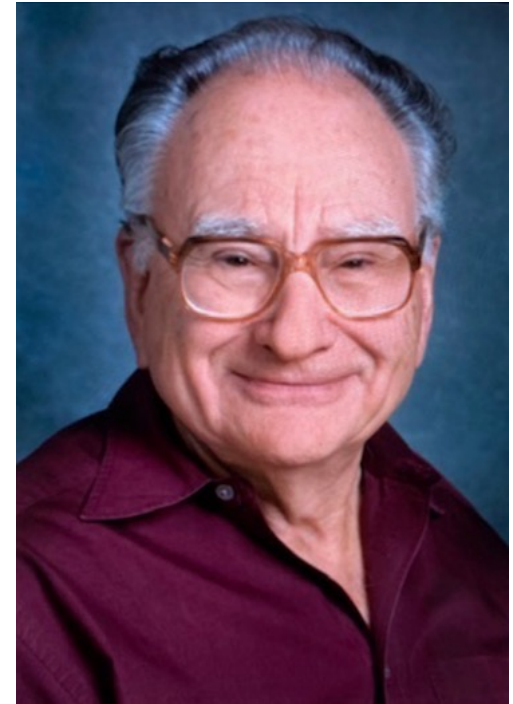


The Origins of RNC

- Management
- Detectors
- Physics
- Young People



RNC = Relativistic Nuclear Collisions (Group/Program)

Hans Georg Ritter

9 Dec 2022

National Perspective for Relativistic HI Experiments around 1990

- . In the 1980s there were attempts to upgrade or replace the Bevalac as a Heavy Ion user facility at LBNL**
- . None successful**
- . The community decided to build RHIC as the national Heavy Ion user facility**
- . RHIC to start construction in 1991**
- . As a consequence the Bevalac was to be shut down in 1993**

NSD HI Experiments

NSD HI groups were not prepared for this

Many experiments with relatively small groups

Bevalac

Dilepton Spectrometer (DLS)

EOS TPC (under construction)

Smaller efforts

CERN

WA80 (Plastic Ball)

NA35 (Streamer Chamber)

NA36 (in planning)

**NA49 and WA80 upgrades under
consideration**

Announcement February 1990

To NSD Staff

From James Symons

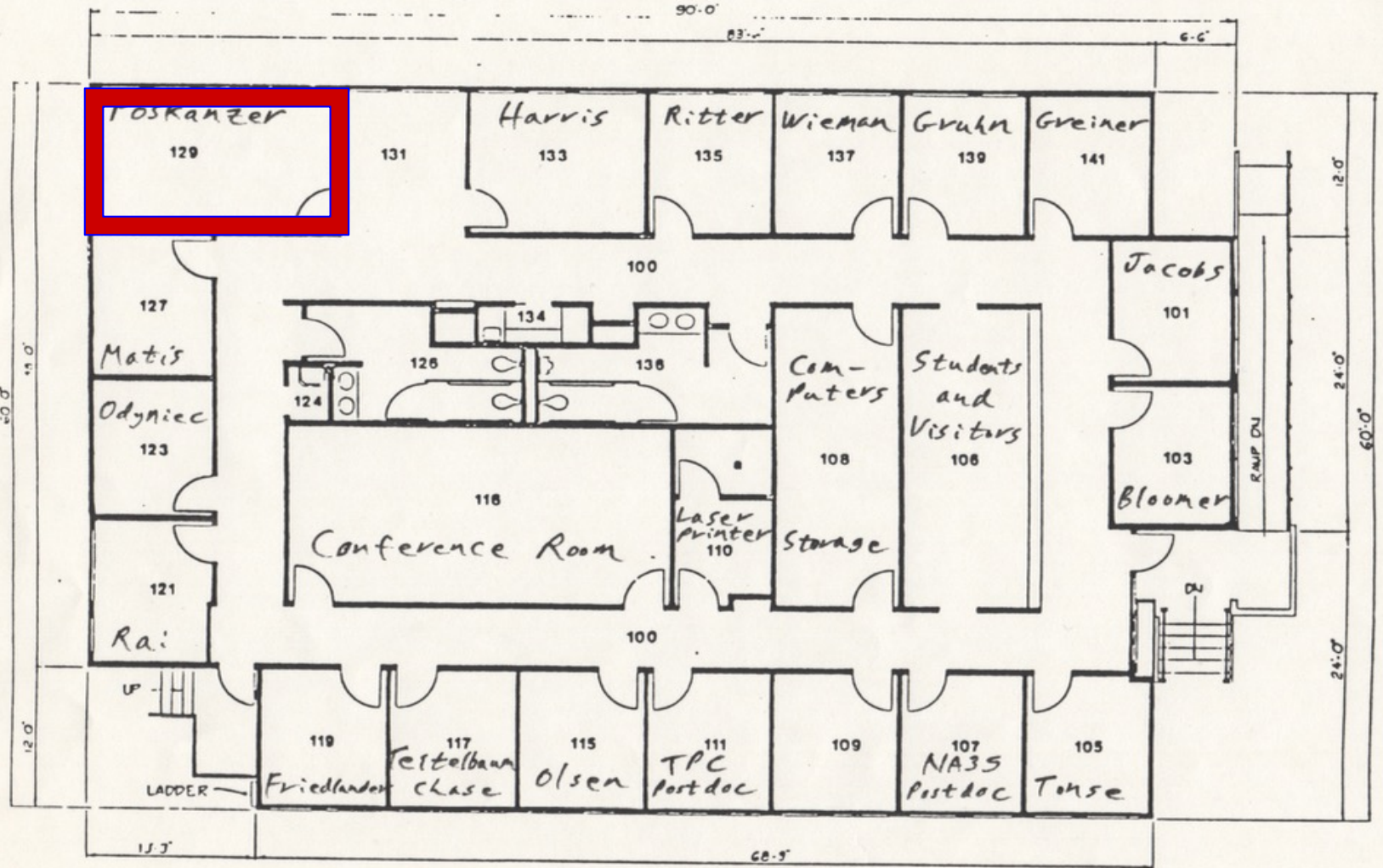
RE Formation of Relativistic Nuclear Collision Group

Effective immediately, I am changing the organization of our relativistic heavy ion experimental groups. Our CERN programs and the HISS TPC at the Bevalac will now be consolidated into a single group which has responsibility for these projects, and which will provide a focal point for our RHIC planning. Art Poskanzer will lead the new group and John Harris will be his deputy with special responsibility for leading the preparation of a proposal for RHIC. Our other large project in this field, the dilepton spectrometer (DLS), will continue to be led by Lee Schroeder. I would like to emphasize that while the new group has responsibility for advancing the RHIC proposal, this will be an open process with strong participation from members of the DLS, the theory group and all other interested parties.

This reorganization is timely for several reasons. RHIC is in the President's budget for a construction start in FY91, the HISS TPC is moving forward rapidly, and the CERN program is at a turning point with a new round of experiments under consideration. We face an enormous challenge in matching our scientific appetites to available resources when we plan these large experimental efforts! I hope that the new framework will facilitate open discussion between the scientists involved, will allow greater flexibility in matching 'people to projects' and will help in developing a consensus regarding the intellectual goals of the relativistic heavy ion program and the most effective means to achieve them.

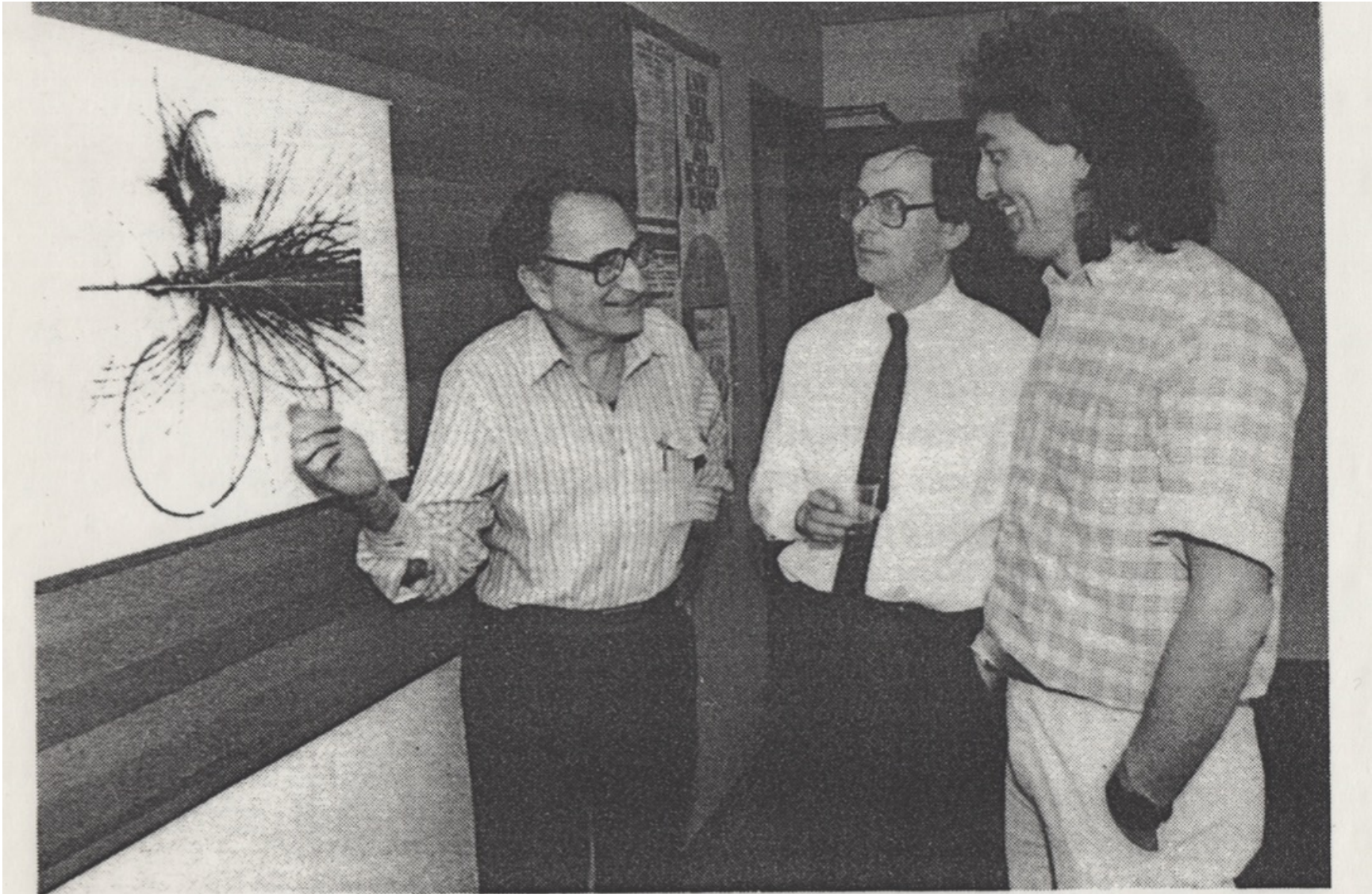
New Home

50D-1
12 Feb 90



11350DK002
1-80

With Conference Room



Relativistic Nuclear Collisions Group leader Art Poskanzer (left), Nuclear Science Division Director James Symons, and RNC Group deputy leader John Harris get together at a reception celebrating the group's move into their new home in Building 50D.

Photo by Paul Hames

Two Important Tasks

Art consolidated the experimental program in a way that

Did not disrupt ongoing experiments

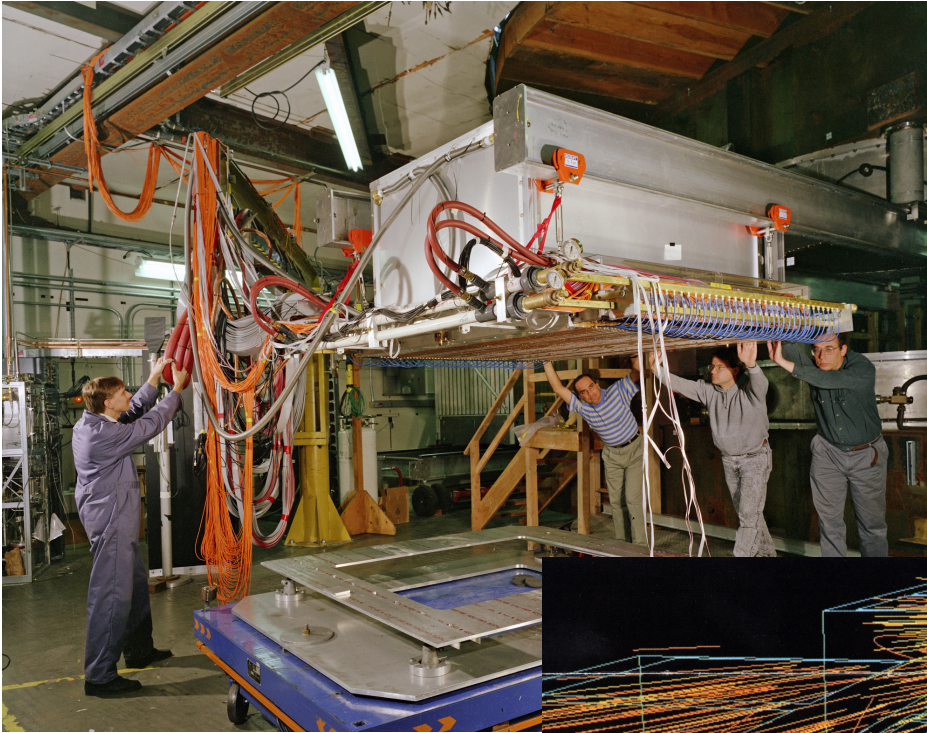
Assured continued physics production for the decade of RHIC construction

Guaranteed sufficient manpower and resources for John's RHIC planning process

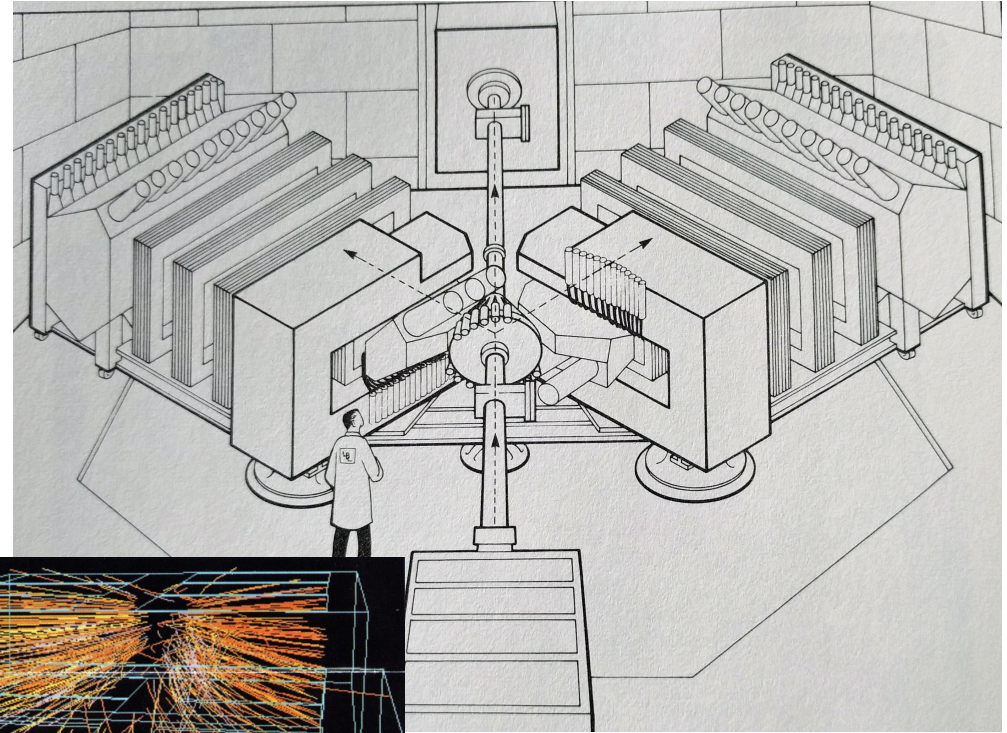
Art initiated the planning process for a RHIC program

Everybody had to contribute to the RHIC effort

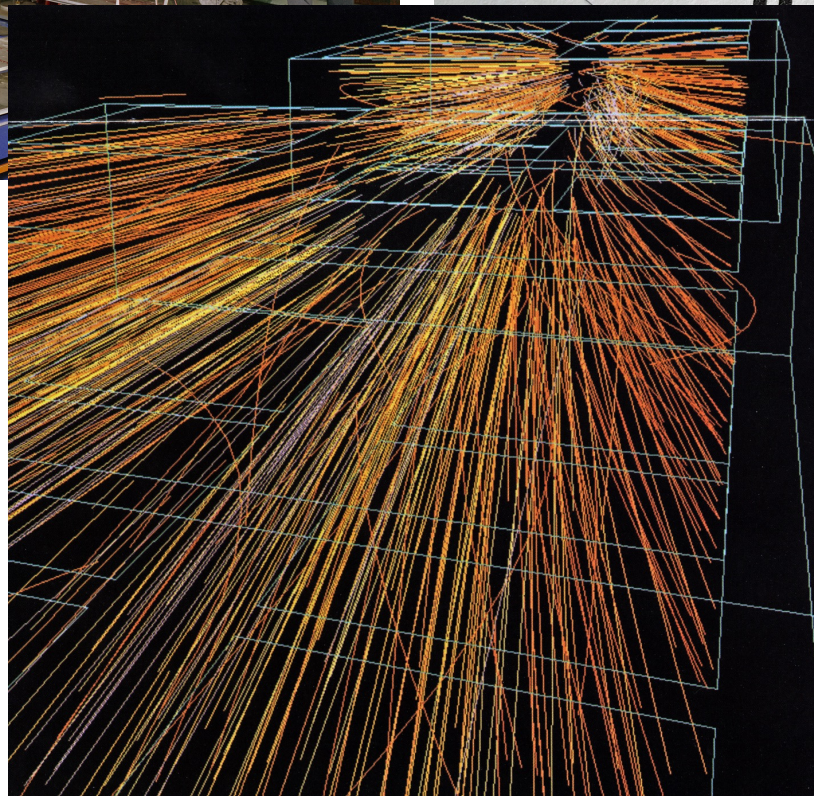
RNC Experimental Program



**EOS TPC
E895**



DLS



NA49

EOS TPC – A TPC with many Innovations

Howard Wieman designed and built a TPC for HI

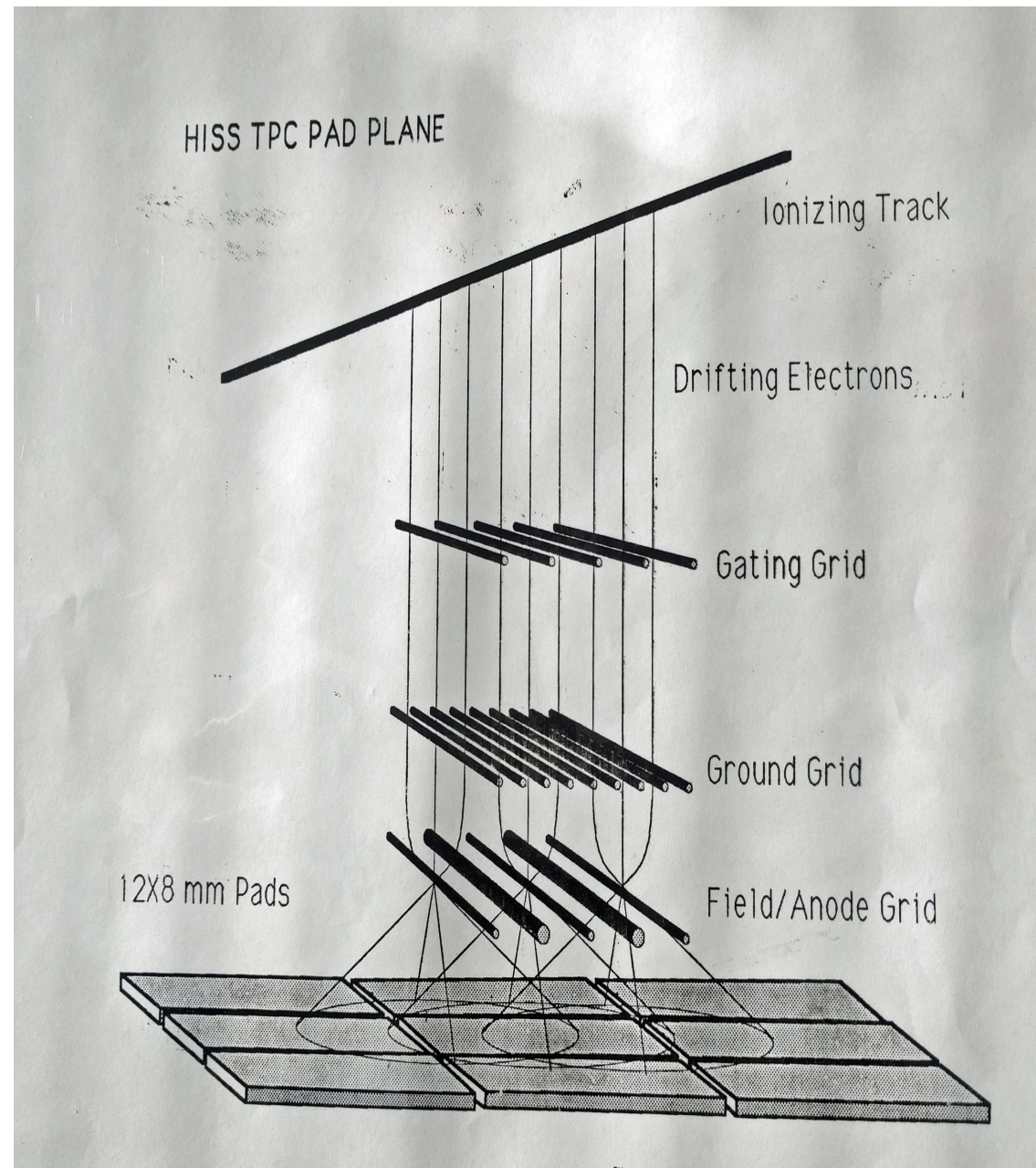
3D coordinate info from drift time and shape of signal induced on pad plane

All electronics on pad plane

Stuart Kleinfelder designed microelectronics (switched capacitor array) for storing time development of pad signals

Signals transferred by fiber optic cables from pad plane to counting house

EOS TPC was prototype for STAR. STAR added integrated preamplifier

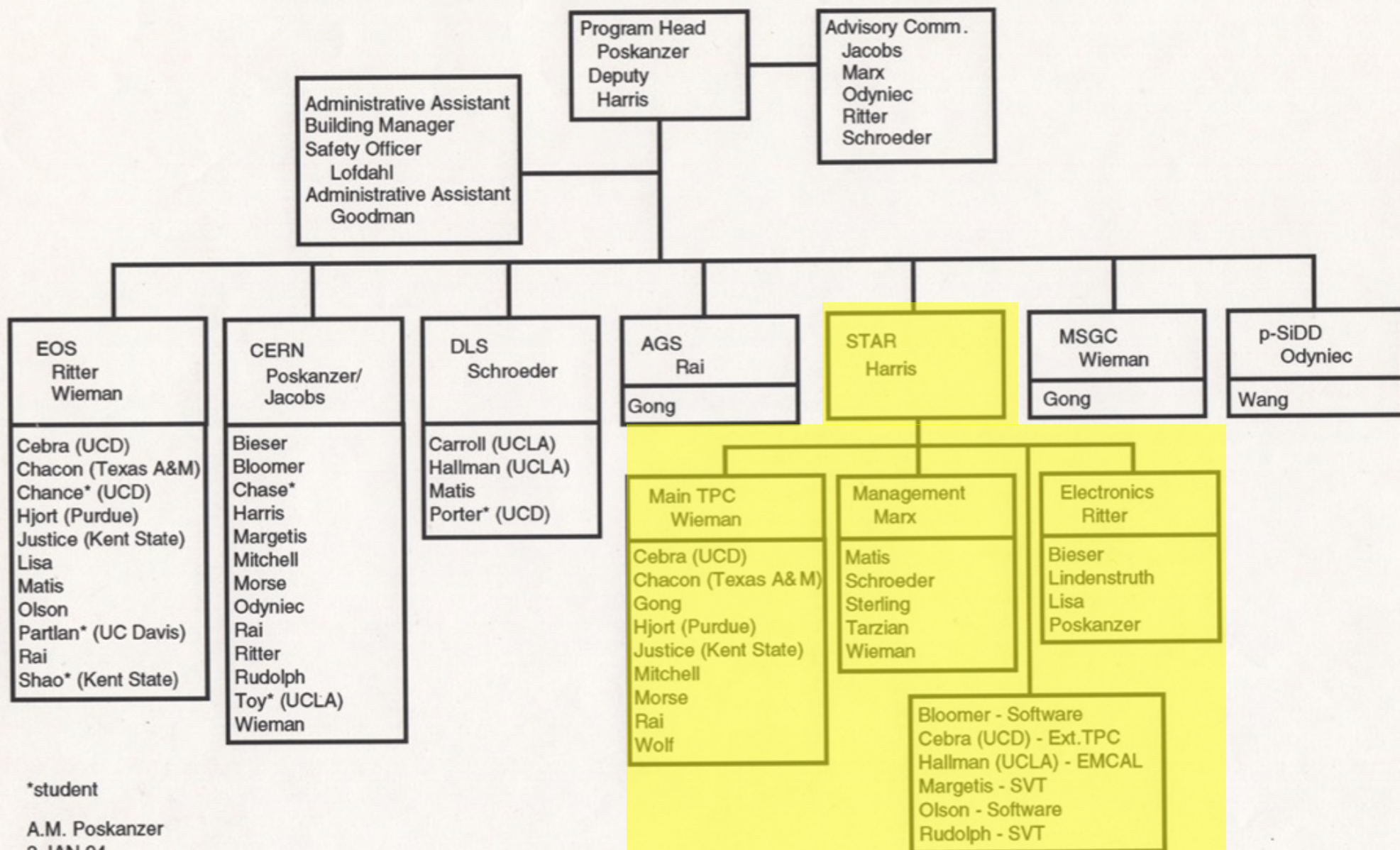


Brainstorming

- Wednesday - October 18 Joint NSD Seminar and RHIC Planning Group Meeting
2:00 PM (JWH) Dr. Miklos Gyulassy, LBL
"Physics Objectives at RHIC"
- Thursday - November 30 RHIC Planning Group Meeting
10:00 AM (JWH) Dr. Glenn Young, ORNL
70A-3377 "Muon pairs"
- Tuesday - January 16 RHIC Planning Group Meeting
2:00 PM (JWH) Dr. Tom Ludlam, BNL
70A-3307 "Getting Started with RHIC Experiments"
- Wednesday - March 7 RHIC Planning Group Meeting
11:00 AM (JWH) Dr. Richard Kadel, LBL
50D-116 "The CDF Tracking Chamber"
- Wednesday - March 28 RHIC Planning Group Meeting
2:00 PM (JWH) Dr. Xin-nian Wang, LBL
50D-116 "The Role of Multiple Mini-Jets in High Energy Hadronic Interactions"
- Tuesday - April 3 RHIC Planning Group Meeting
2:00PM (JWH) Prof. Shoji Nagamiya, Columbia U.
50D-116 "Thoughts on a RHIC Experiment"
- Tuesday - April 17 RHIC Planning Group Meeting
2:00PM (JWH) Dr. Barbara Jacak, LANL
50D-116 "RHIC R&D Efforts on Calorimetry at Los Alamos"

TPC Construction

Relativistic Nuclear Collisions Program



*student

A.M. Poskanzer
3 JAN 94

The Finished TPC

The TPC was designed, built and assembled at LBNL and flown to Brookhaven by military training mission



First Star Paper



STAR first paper

Phys. Rev. Lett. **86**, 402(2001)

Art, Sergei and Raimond worked out the paper

VOLUME 86, NUMBER 3

PHYSICAL REVIEW LETTERS

15 JANUARY 2001

Elliptic Flow in Au + Au Collisions at $\sqrt{s_{NN}} = 130$ GeV

K. H. Ackermann,¹⁹ N. Adams,²⁸ C. Adler,¹² Z. Ahammed,²⁷ S. Ahmad,²⁸ C. Allgower,¹³ J. Amsbaugh,³⁴
M. Anderson,⁶ E. Anderssen,¹⁷ H. Arnesen,³ L. Arnold,¹⁴ G. S. Averichev,¹⁰ A. Baldwin,¹⁶ J. Balewski,¹³
O. Barannikova,^{10,27} L. S. Barnby,¹⁶ J. Baudot,¹⁴ M. Beddo,¹ S. Bekele,²⁴ V. V. Belaga,¹⁰ R. Bellwied,³⁵ S. Bennett,³⁵
I. Bercoff,¹⁷ I. Berger,¹² W. Betts,²⁴ H. Bichsel,³⁴ E. Bissler,¹⁷ J. C. Bland,¹³ M. Bloomer,¹⁷ C. O. Blyth,⁴ J. Boehm,¹⁷

- **Collectivity is the most important observation for the formation of perfect liquid**
- **Based on this achievement Art was awarded the Bonner Prize**

More Firsts

VOLUME 89, NUMBER 20

PHYSICAL REVIEW LETTERS

11 NOVEMBER 2002

Centrality Dependence of High- p_T Hadron Suppression in Au + Au Collisions at $\sqrt{s_{NN}} = 130$ GeV

C. Adler,¹¹ Z. Ahammed,²³ C. Allgower,¹² J. Amonett,¹⁴ B. D. Anderson,¹⁴ M. Anderson,⁵ G. S. Averichev,⁹
J. Balewski,¹² O. Barannikova,^{9,23} L. S. Barnby,¹⁴ J. Baudot,¹³ S. Bekele,²⁰ V.V. Belaga,⁹ R. Bellwied,³¹ J. Berger,¹¹
H. Bichsel,³⁰ A. Billmeier,³¹ L. C. Bland,² C. O. Blyth,³ B. E. Bonner,²⁴ A. Boucham,²⁶ A. Brandin,¹⁸ A. Bravar,²
D. V. Cadman,¹ H. Caines,³³ M. Calderón de la Barca Sánchez,² A. Cardenas,²³ J. Carroll,¹⁵ J. Castillo,²⁶ M. Castro,³¹

**High p_T Hadron Suppression, analyzed by Bum Choi and Peter Jacobs
First reported at QM 2001 Stony Brook**

VOLUME 90, NUMBER 3

PHYSICAL REVIEW LETTERS

week ending
24 JANUARY 2003

Azimuthal Anisotropy and Correlations in the Hard Scattering Regime at RHIC

C. Adler,¹¹ Z. Ahammed,²³ C. Allgower,¹² J. Amonett,¹⁴ B. D. Anderson,¹⁴ M. Anderson,⁵ G. S. Averichev,⁹
J. Balewski,¹² O. Barannikova,^{9,23} L. S. Barnby,¹⁴ J. Baudot,¹³ S. Bekele,²⁰ V.V. Belaga,⁹ R. Bellwied,³¹ J. Berger,¹¹
H. Bichsel,³⁰ A. Billmeier,³¹ L. C. Bland,² C. O. Blyth,³ B. E. Bonner,²⁴ A. Boucham,²⁶ A. Brandin,¹⁸ A. Bravar,²
R. V. Cadman,¹ H. Caines,³³ M. Calderón de la Barca Sánchez,² A. Cardenas,²³ J. Carroll,¹⁵ J. Castillo,²⁶ M. Castro,³¹
D. Cebra,⁵ P. Chaloupka,²⁰ S. Chattopadhyay,³¹ Y. Chen,⁶ S. P. Chernenko,⁹ M. Cherney,⁸ A. Chikanian,³³ B. Choi,²⁸

First evidence for Jet Suppression, David Hardtke

Most Recent STAR Paper

PHYSICAL REVIEW LETTERS **128**, 202303 (2022)

Measurements of Proton High-Order Cumulants in $\sqrt{s_{NN}} = 3$ GeV Au + Au Collisions and Implications for the QCD Critical Point

M. S. Abdallah,⁵ B. E. Aboona,⁵⁵ J. Adam,⁶ L. Adamczyk,² J. R. Adams,³⁹ J. K. Adkins,³⁰ G. Agakishiev,²⁸ I. Aggarwal,⁴¹ M. M. Aggarwal,⁴¹ Z. Ahammed,⁶¹ I. Alekseev,^{3,35} D. M. Anderson,⁵⁵ A. Aparin,²⁸ E. C. Aschenauer,⁶ M. U. Ashraf,¹¹ F. G. Atetalla,²⁹ A. Attri,⁴¹ G. S. Averichev,²⁸ V. Bairathi,⁵³ W. Baker,¹⁰ J. G. Ball Cap,²⁰ K. Barish,¹⁰ A. Behera,⁵² R. Bellwied,²⁰ P. Bhagat,²⁷ A. Bhasin,²⁷ J. Bielcik,¹⁴ J. Bielcikova,³⁸ I. G. Bordyuzhin,³ J. D. Brandenburg,⁶ A. V. Brandin,³⁵ I. Bunzarov,²⁸ X. Z. Cai,⁵⁰ H. Caines,⁶⁴ M. Calderón de la Barca Sánchez,⁸ D. Cebra,⁸ I. Chakaberia,^{31,6} P. Chaloupka,¹⁴ B. K. Chan,⁹ F-H. Chang,³⁷ Z. Chang,⁶ N. Chankova-Bunzarova,²⁸ A. Chatterjee,¹¹ S. Chattopadhyay,⁶¹ D. Chen,¹⁰ J. Chen,⁴⁹ J. H. Chen,¹⁸ X. Chen,⁴⁸ Z. Chen,⁴⁹ J. Cheng,⁵⁷ M. Chevalier,¹⁰ S. Choudhury,¹⁸ W. Christie,⁶ X. Chu,⁶ H. J. Crawford,⁷ M. Csanád,¹⁶ M. Daugherty,¹ T. G. Dedovich,²⁸ I. M. Deppner,¹⁹ A. A. Derevschikov,⁴³ A. Dhamija,⁴¹ L. Di Carlo,⁶³ L. Didenko,⁶ P. Dixit,²² X. Dong,³¹ J. L. Drachenberg,¹ E. Duckworth,²⁹ J. C. Dunlop,⁶ N. Elsey,⁶³ J. Engelage,⁷ G. Eppley,⁴⁵ S. Esumi,⁵⁸ O. Evdokimov,¹² A. Ewigleben,³² O. Eyser,⁶ R. Fatemi,³⁰ F. M. Fawzi,⁵ S. Fazio,⁶ P. Federic,³⁸ J. Fedorisin,²⁸ C. J. Feng,³⁷ Y. Feng,⁴⁴ P. Filip,²⁸ E. Finch,⁵¹ Y. Fisyak,⁶ A. Francisco,⁶⁴ C. Fu,¹¹ L. Fulek,² C. A. Gagliardi,⁵⁵ T. Galatyuk,¹⁵ F. Geurts,⁴⁵ N. Ghimire,⁵⁴ A. Gibson,⁶⁰ K. Gopal,²³ X. Gou,⁴⁹ D. Grosnick,⁶⁰ A. Gupta,²⁷ W. Guryn,⁶ A. I. Hamad,²⁹ A. Hamed,⁵ Y. Han,⁴⁵ S. Harabasz,¹⁵ M. D. Harasty,⁸ J. W. Harris,⁶⁴ H. Harrison,³⁰ S. He,¹¹ W. He,¹⁸ X. H. He,²⁶ Y. He,⁴⁹ S. Heppelmann,⁸ S. Heppelmann,⁴² N. Herrmann,¹⁹ E. Hoffman,²⁰ L. Holub,¹⁴

From the RHIC Fixed Target Program, promoted by
Dan Cebra and Grazyna Odyniec

Alice Leadership Team



Bedanga Mohanty

NISER

National Institute of Science Education and
Research



Kai Schweda

GSI



Marco van Leeuwen

Utrecht University

Wherever he might be, I am sure Art is proud of his creation and achievements

