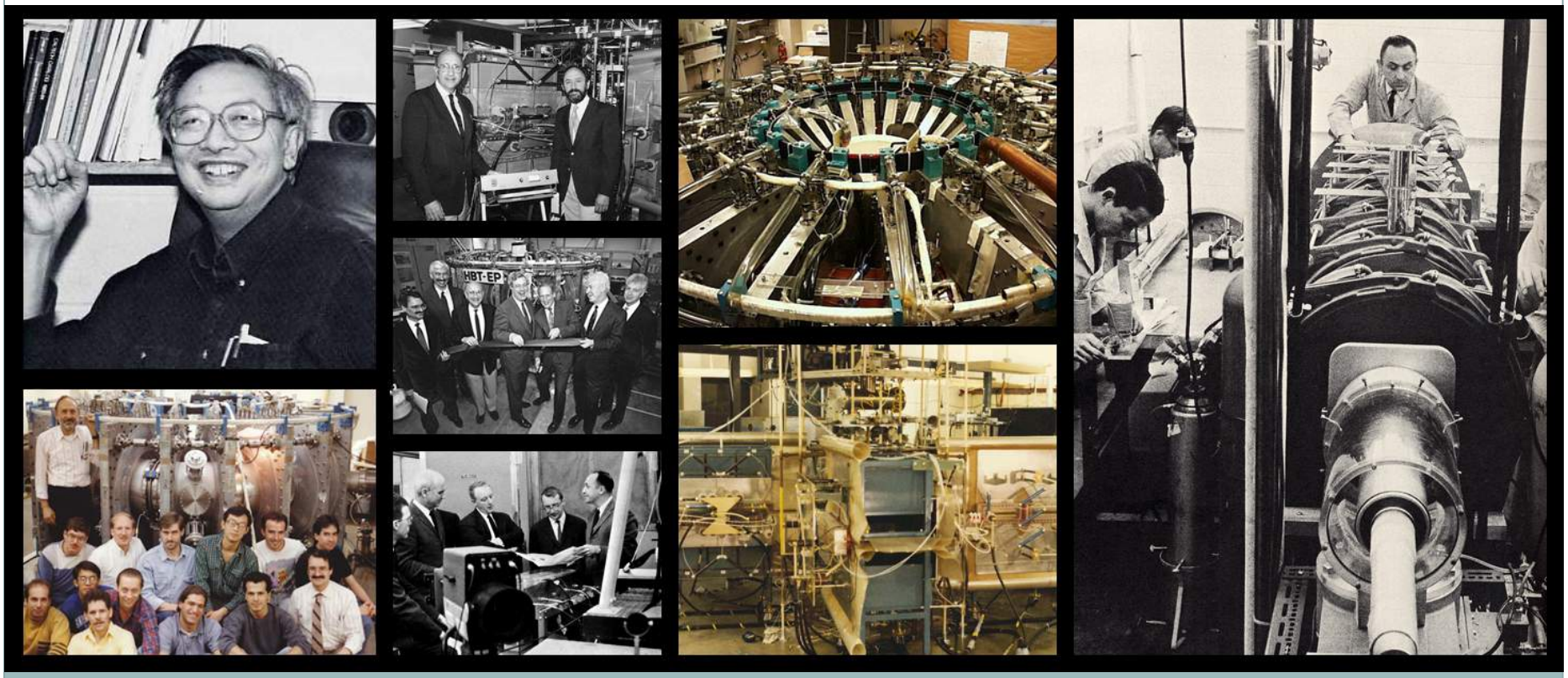
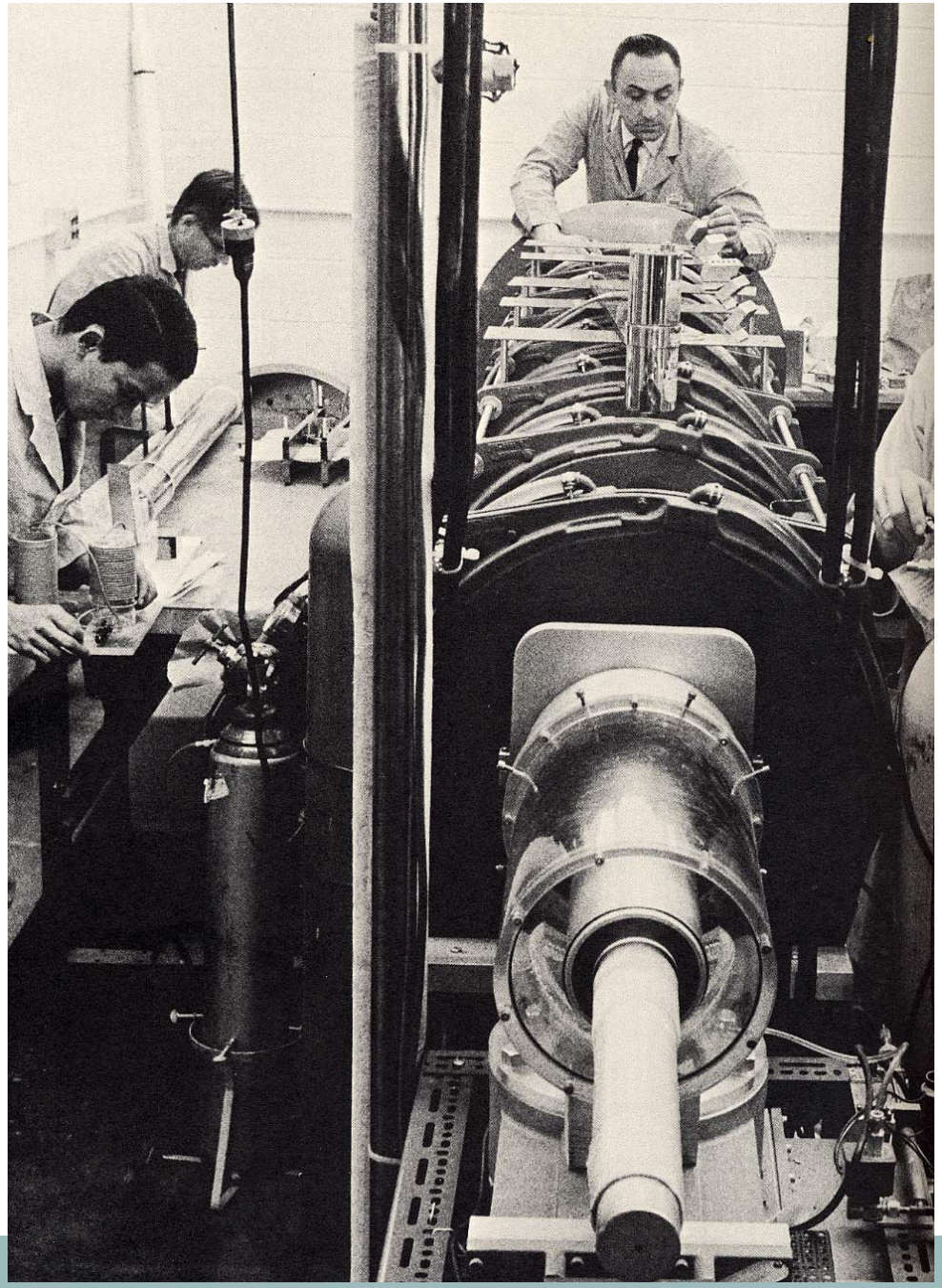
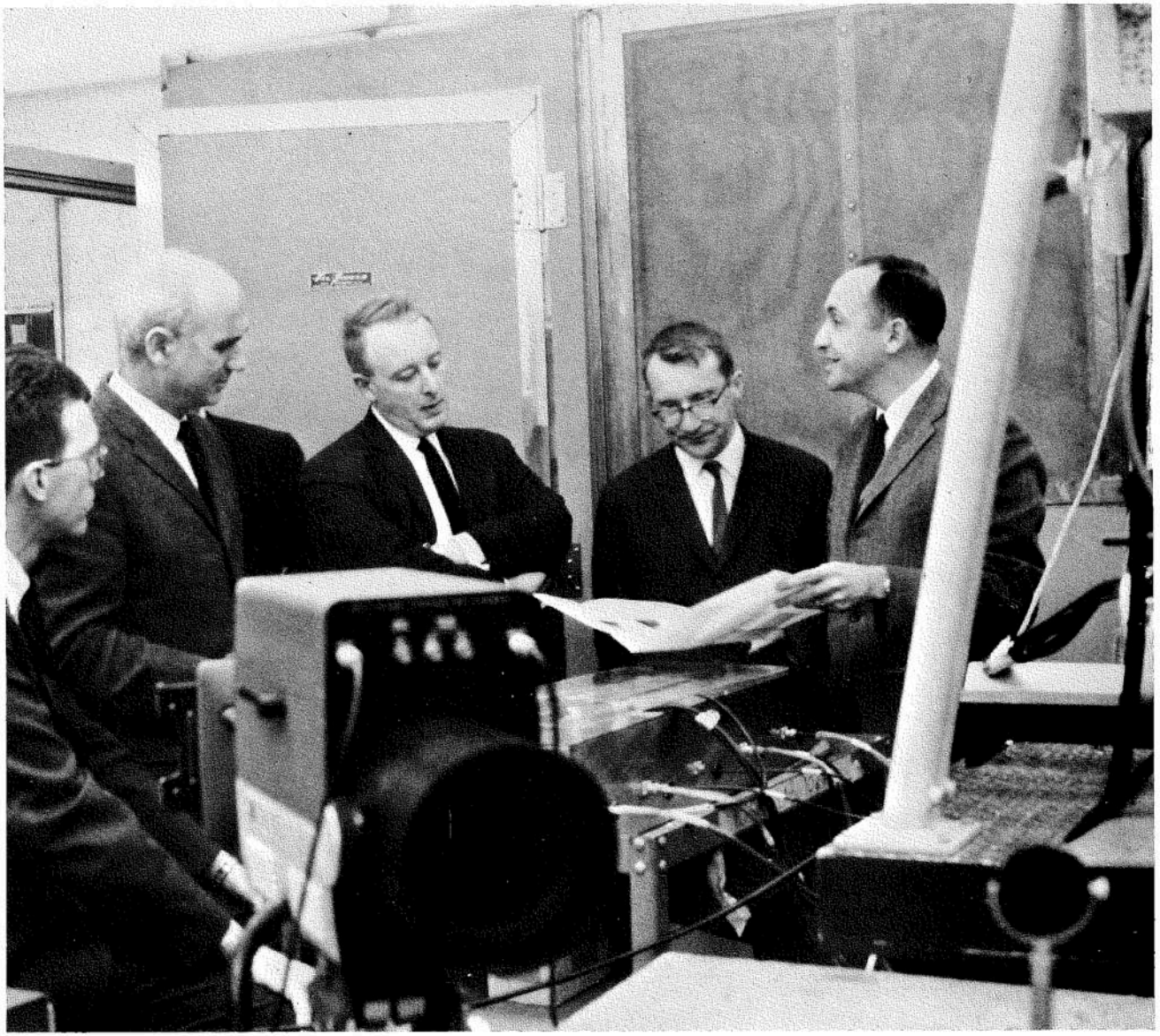
Plasma Physics Lab 50th Anniversary Celebration

Thursday, April 26, 2012

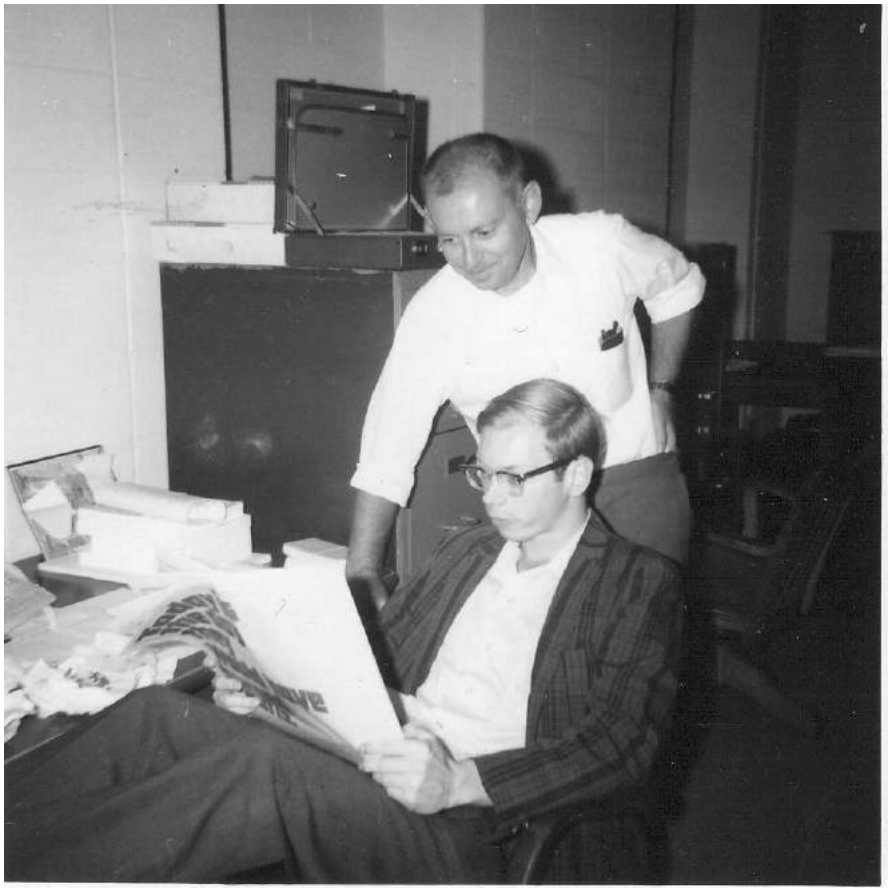


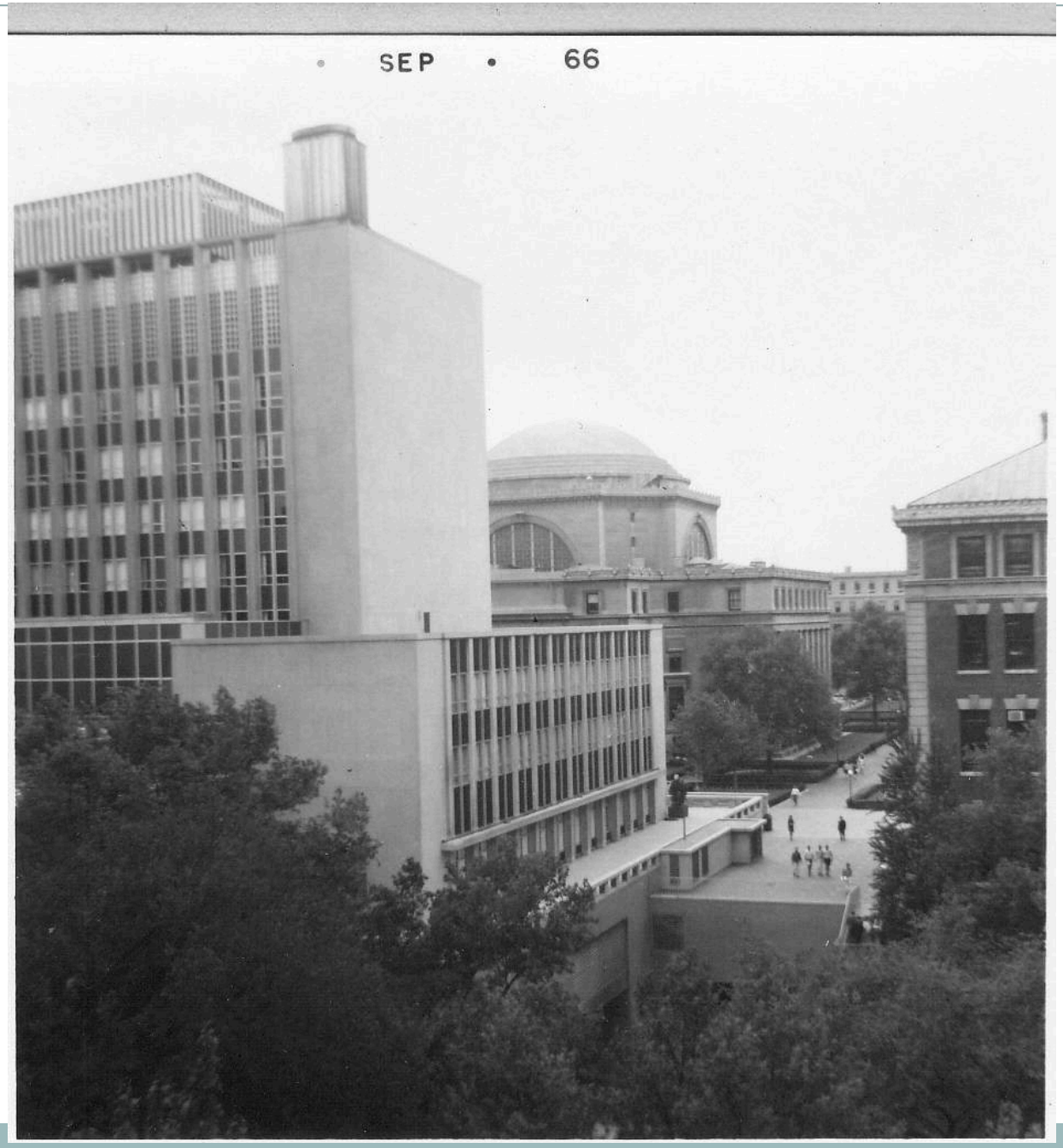




THE PLASMA LABORATORY
Left to right: Professors Marshall, Schlesinger, Turkott, Sagdeev (visiting from Russia), Gross.

1965-1966




SEP • 66

1965

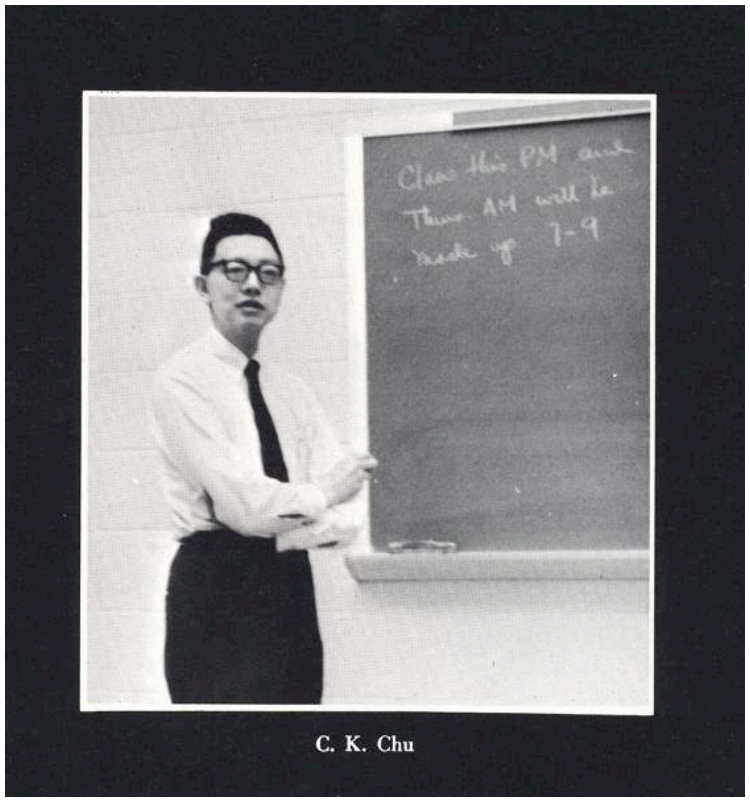
1965-
1966


DOCTORATES
EARNED IN THE
PLASMA LABORATORY
OF
COLUMBIA UNIVERSITY
THEODORE E. LUZZI
1963
VICTOR L. GRANATSTEIN
1963
KWADWO O. KESSEY
1963
PAUL A. KOCH
1964
BERNARD J. EASTLUND
1965
BERTRAM PARKER
1965
ROBERT T. TAUSSIG
1965
BENNETT MILLER
1965
ROBIN O. MOFZ
1965
ROBERT F. LEHENY
1966
YUNG-GANN CHEN
1966
ANN E. FULLER
1966

1966

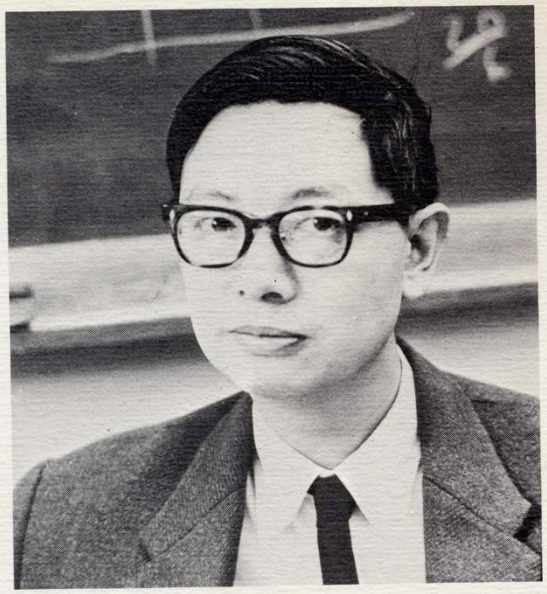
Gunther Tumm | June Clearman | Werner Hartl | Jack Dorning

1966



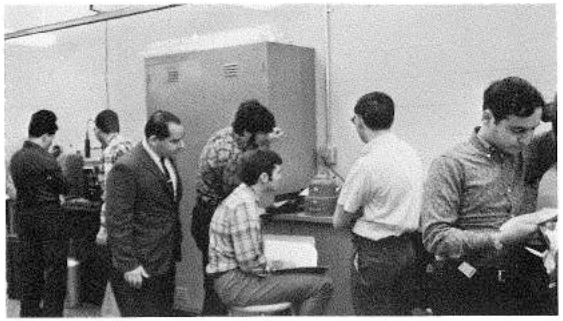
C. K. Chu

1967



Prof. Chu

1968



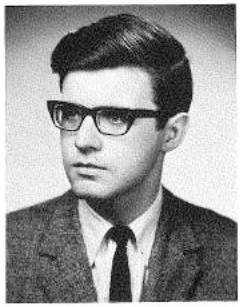
Stephen Ostrow

Edward Gerstenhaber

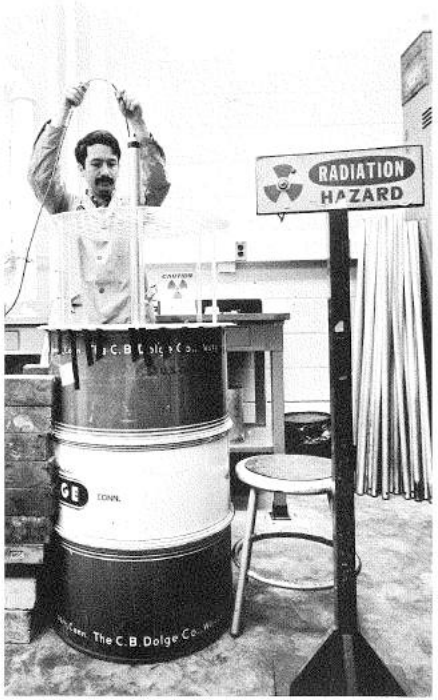
James Lyons

Harold Rothstein

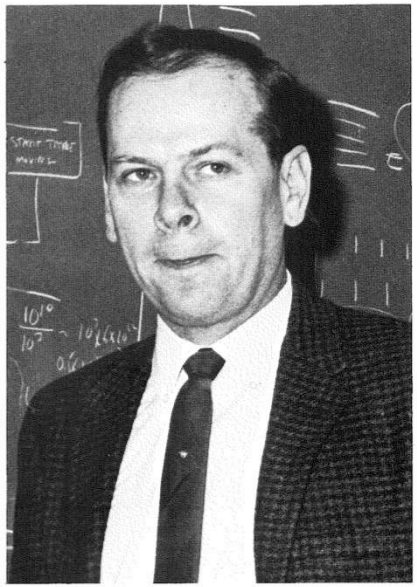
Michael Millner



Christos Sofes
Applied Physics



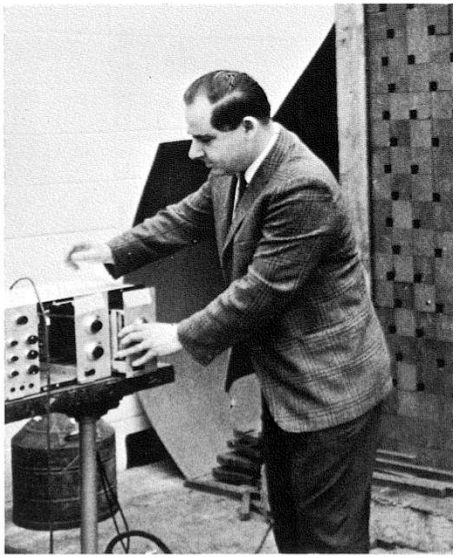
1968



Prof. Lidofsky

Judy

Minna

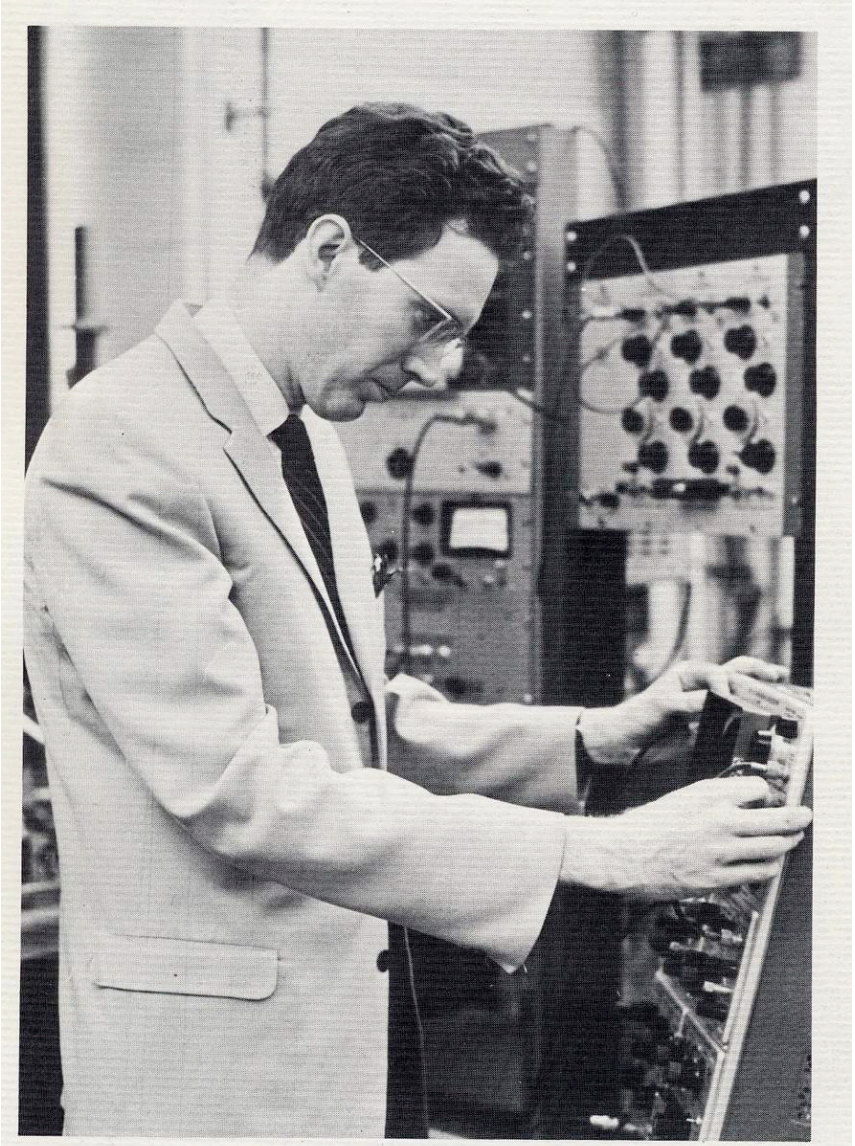


Prof. Melkonian

1968

Prof. Chu

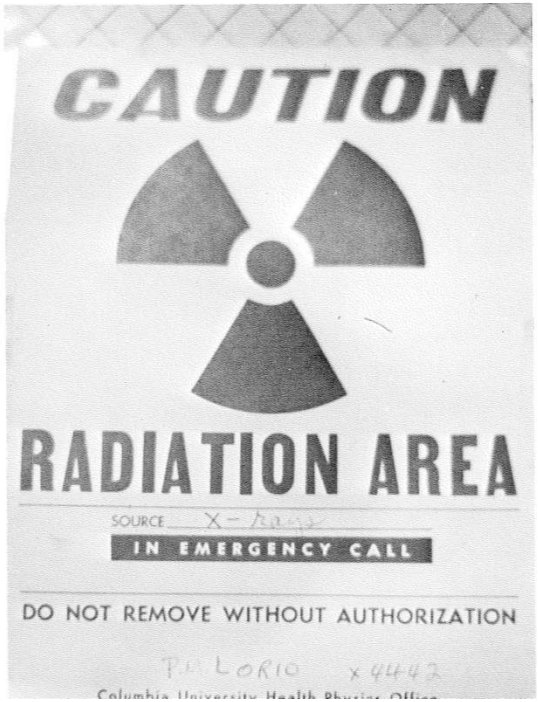
1969

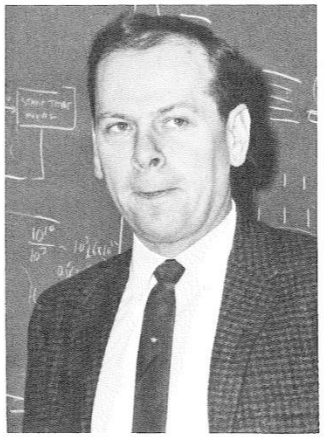


PROF. MARSHALL

1969

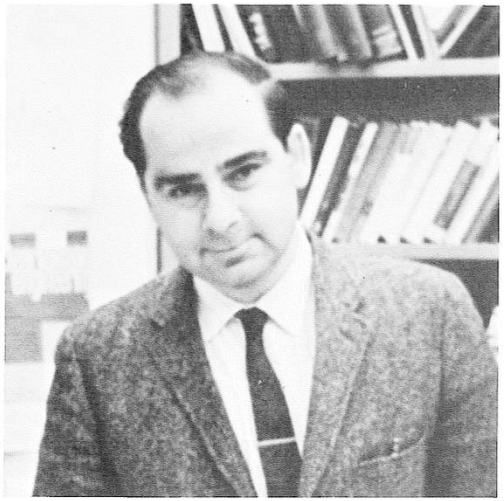
PROF. HAVENS

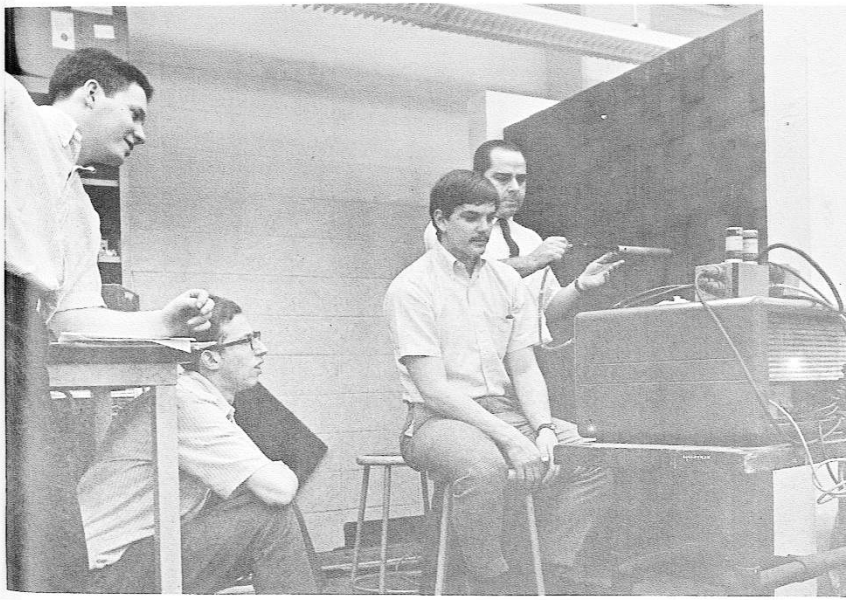




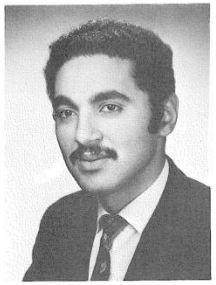
PROF. LIDOFSKY

PROF. MELKONIAN





1969

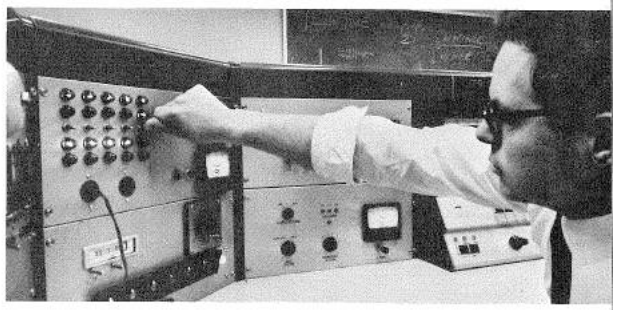


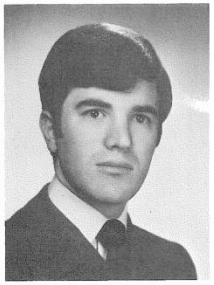
FEISAL ABDUL-RAUF

ROBERT N. CHERDACK

OWEN L. DEUTSCH

IRA FUCHS





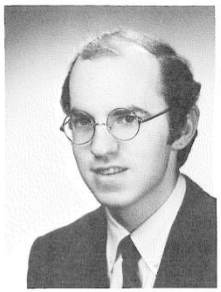
JAMES COROMILAS

NATHAN DENKIN

LAWRENCE GRANNIS

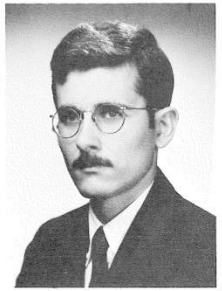
EDWARD HENDRICK

1969



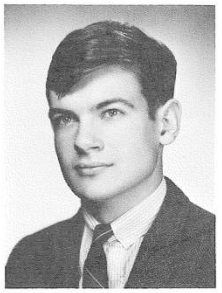
ANDREW KARP

STEVEN LARSON



SAMUEL MIRANDA

NEIL A. PASSMAN

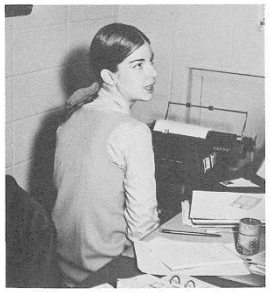


ANDREW J. SALTHOUSE

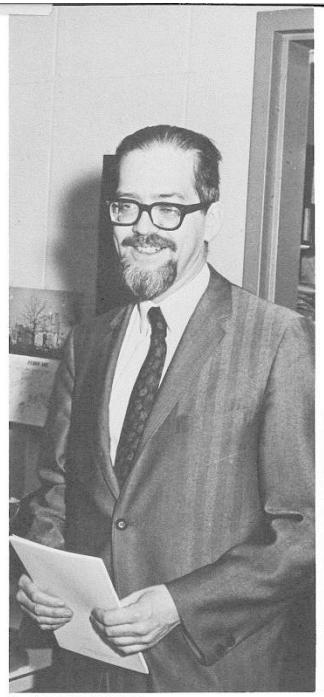
MICHAEL TODOSOW

1970

nuclear
engineering



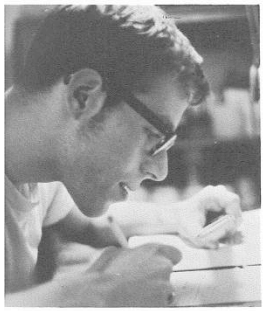
Ann Whitney / Administrative Assistant

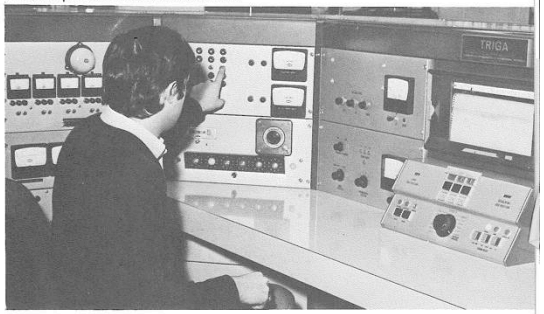


Professor H. Goldstein

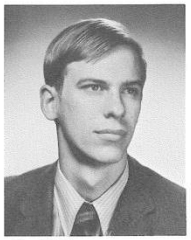
Jeannette Rainey / Secretary

Mina Karp / Administrative Assistant

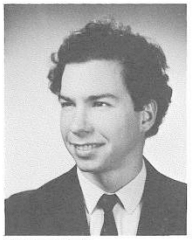




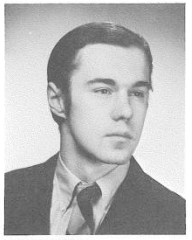
Controversial TRIGA



John Wallace

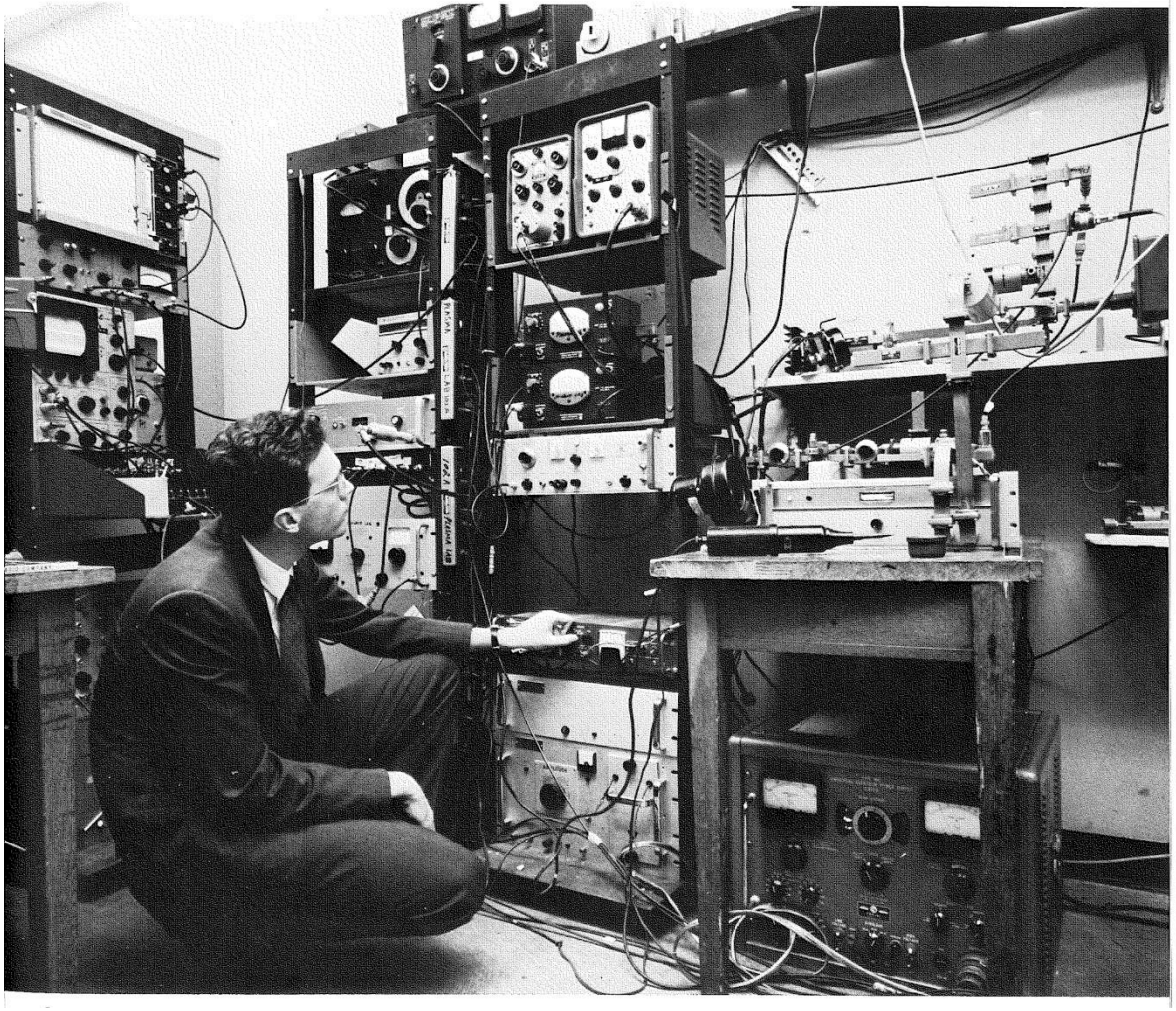


Michael Zestar



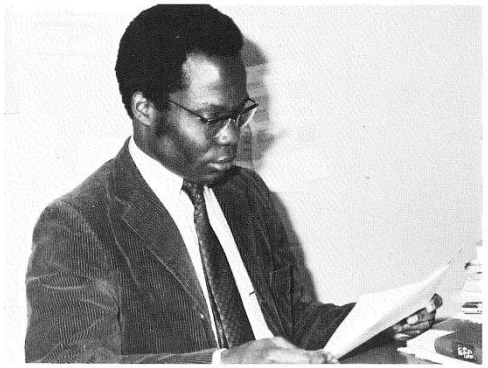
Edward Zima

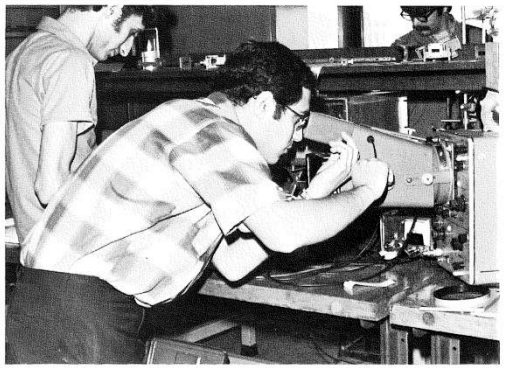
1971



1971

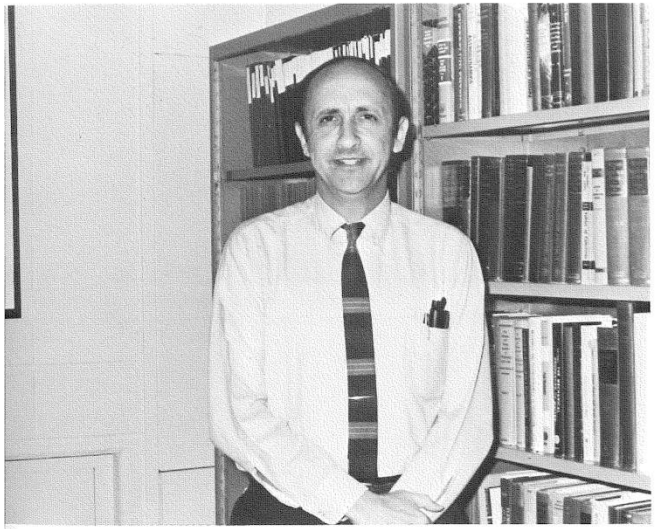
Professor T. Marshall





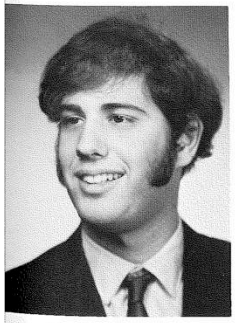
Professor I. Oso

1971

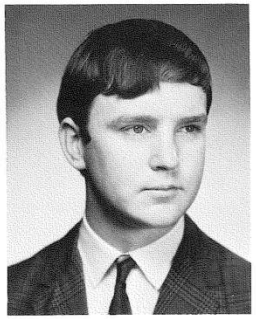


Professor R. Gross

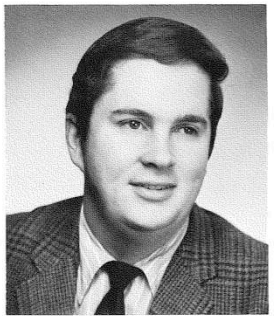
Professor F. Freudenstein



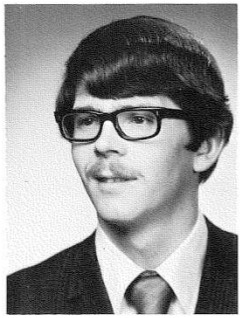
Michael Abramowitz



Thomas Dempsey

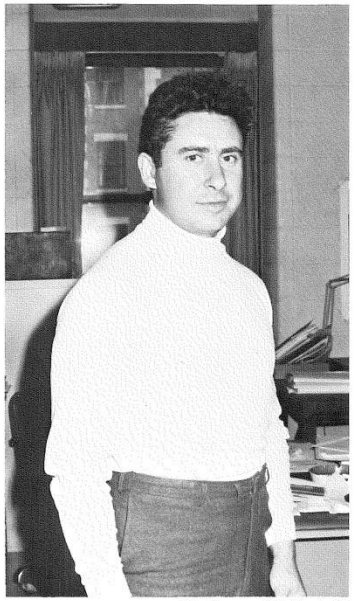


Terrence E. Donovan



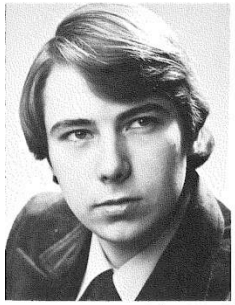
Rodney Gartner

Professor G. Domoto

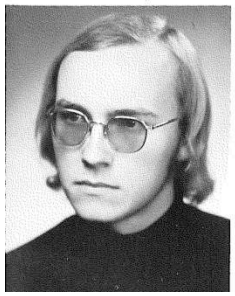


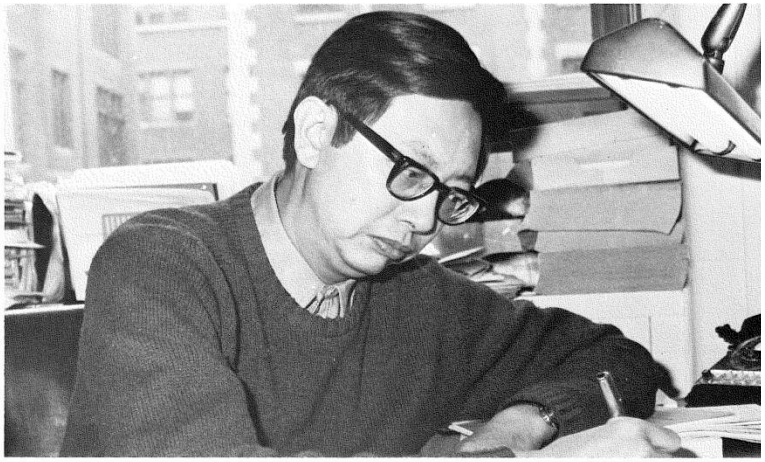
Professor V. Castelli

Nuclear Science and Engineering



John Kittel

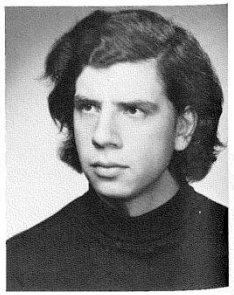




Professor C. Chu

David C. Hom

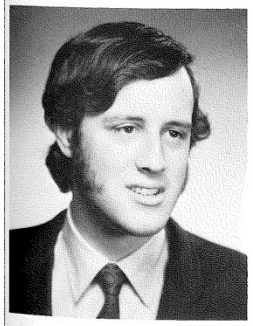
Sheldon Meth



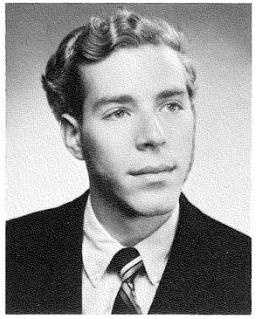
Pantelis Pechlivanides

1971

Professor H. Goldstein

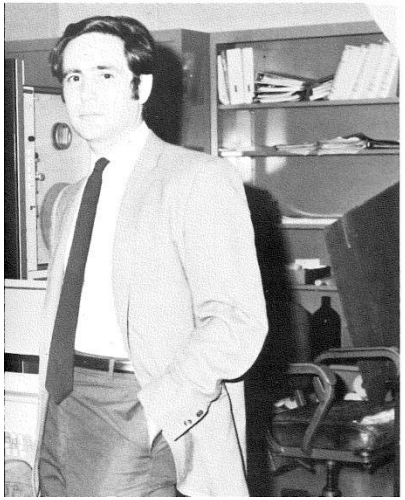


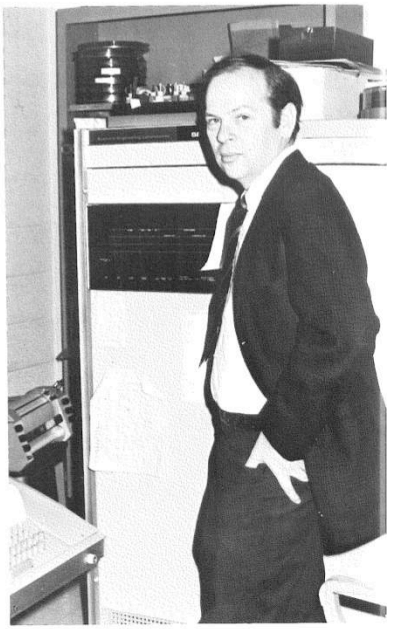
Samuel Talmadge



Albert Ugelow

Professor E. Melkonian

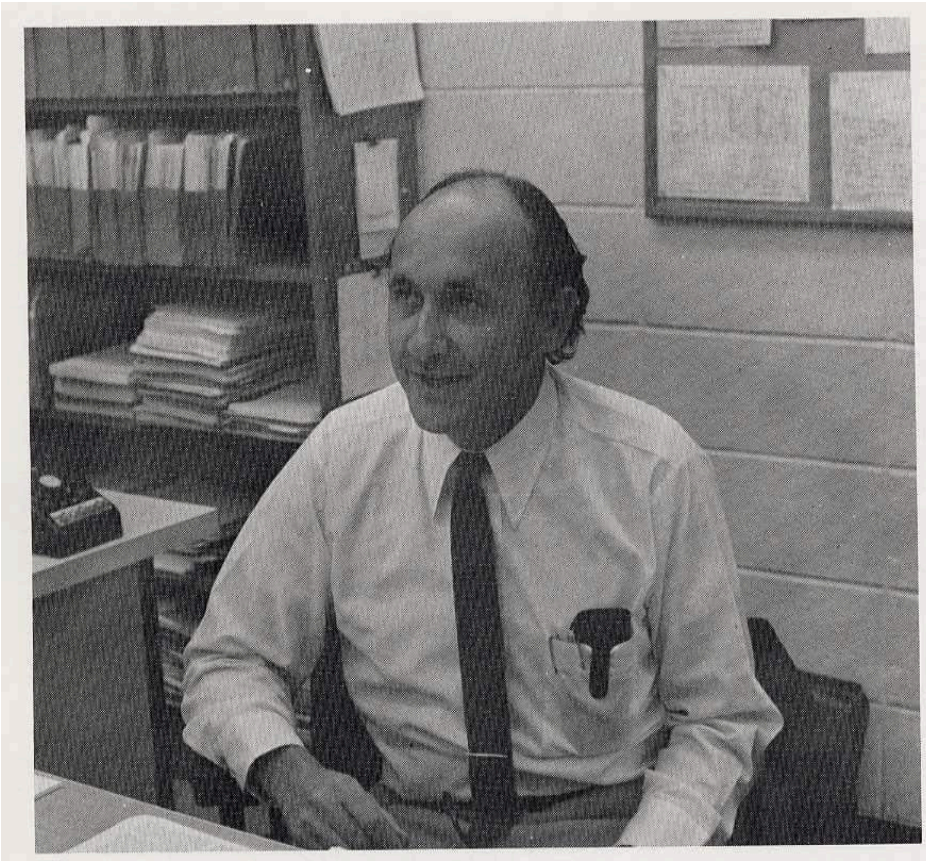




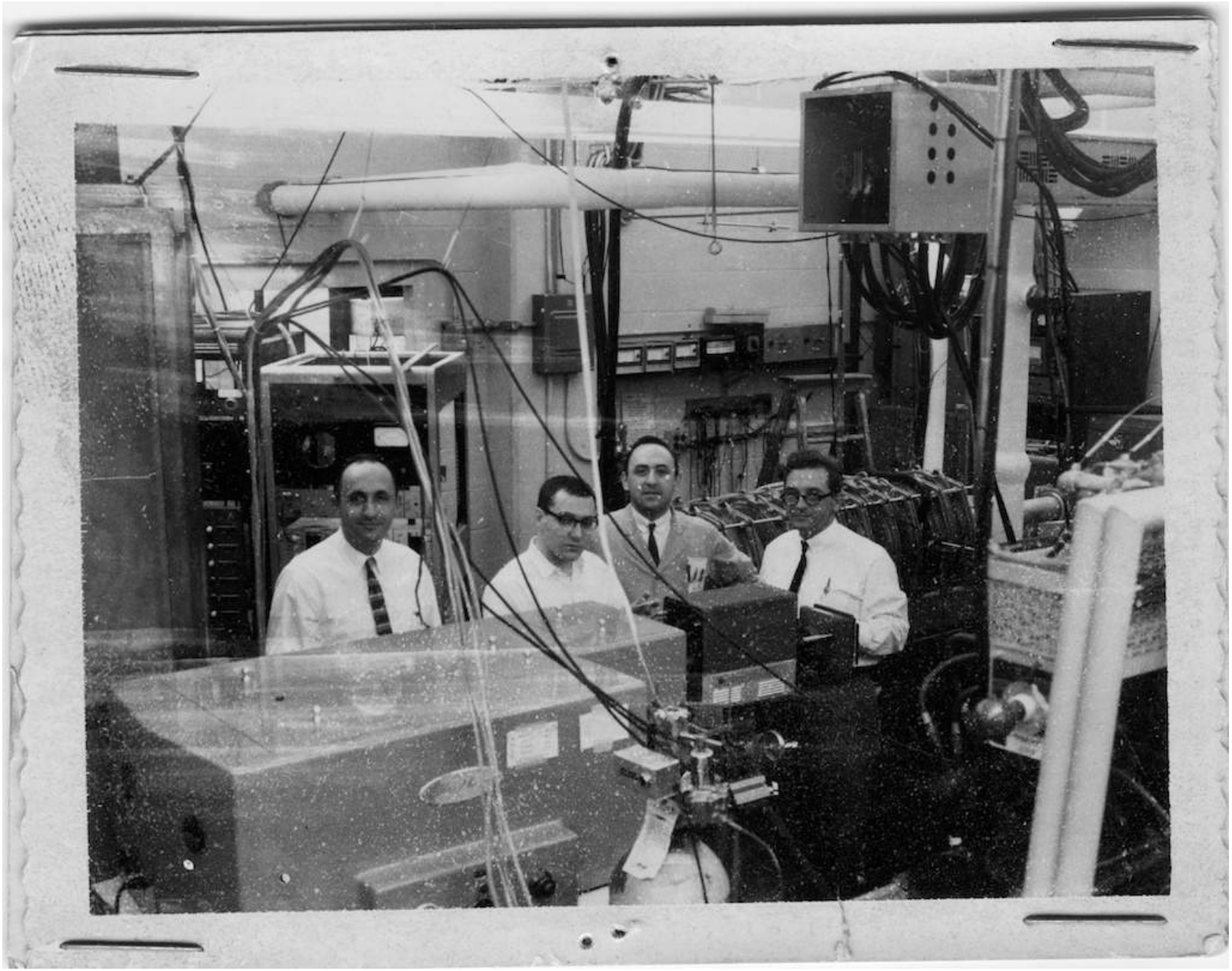
Professor L. J. Lidof

)aCruz / Secretary

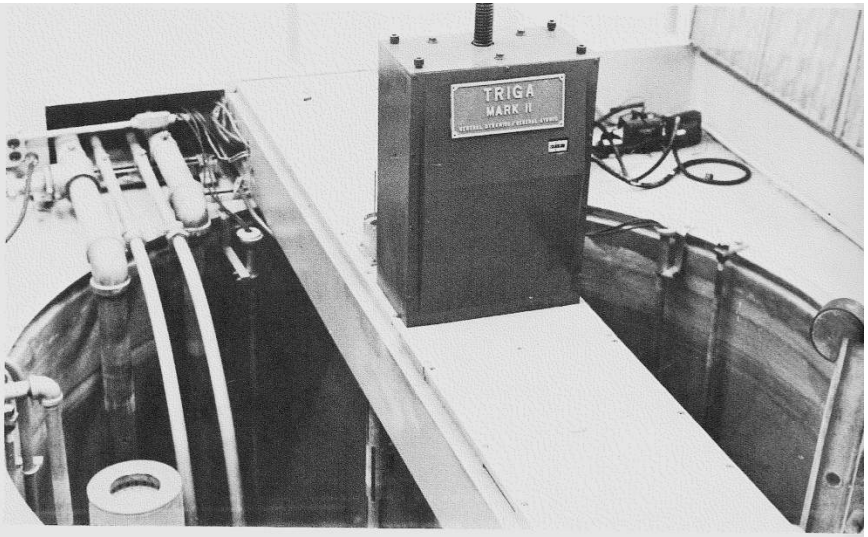
1972

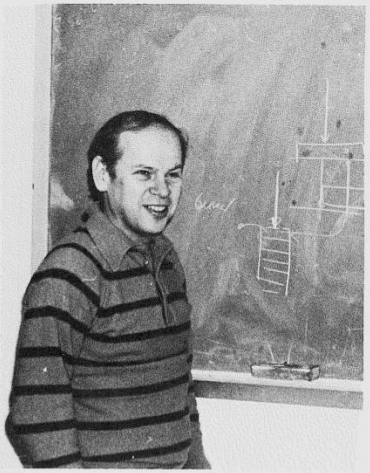


Robert A. Gross

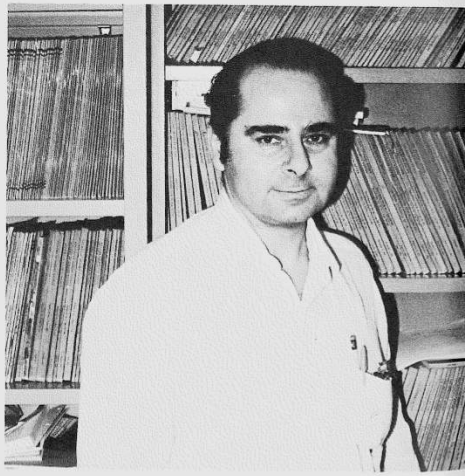


1974

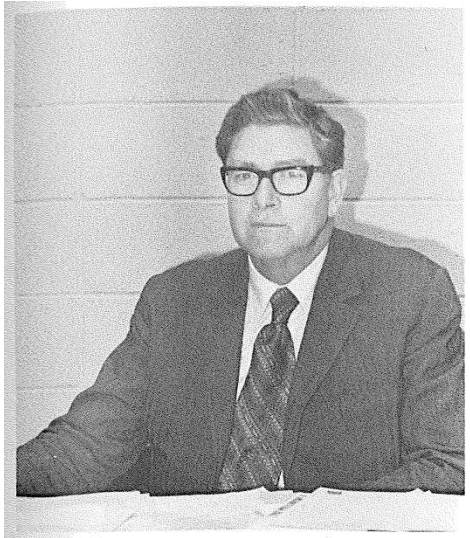




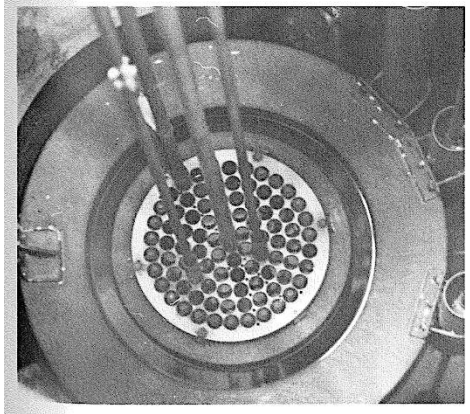
LEON LIDOFSKY

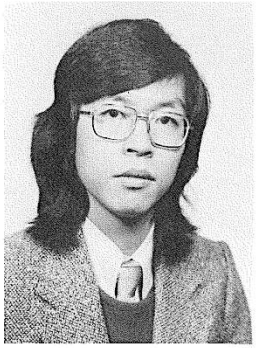


EDWARD MELKONIAN



WILLIAM HAVENS, JR.

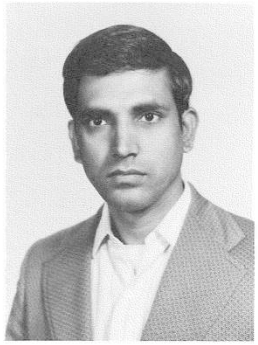




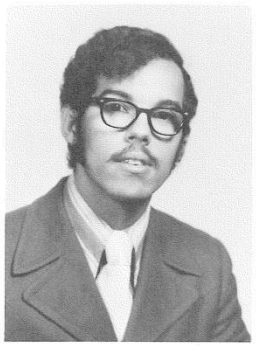
PAUL LEE

CHARLES BONILLA

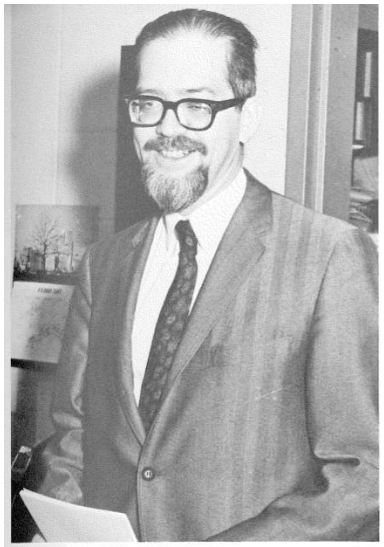
1974

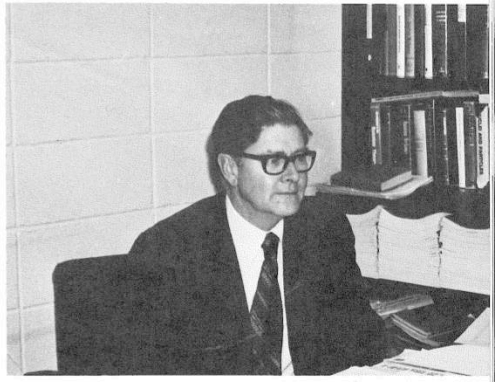


PERVEZ MIRZA

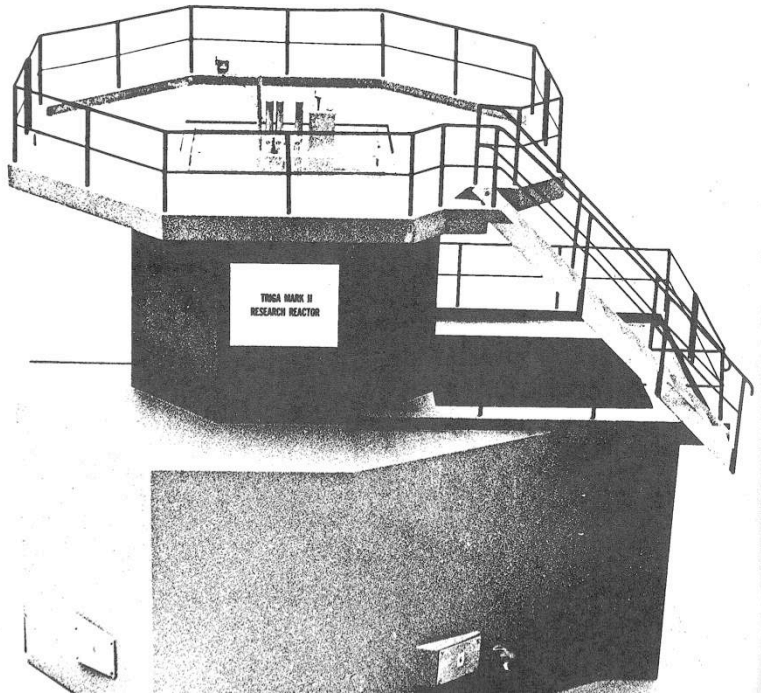


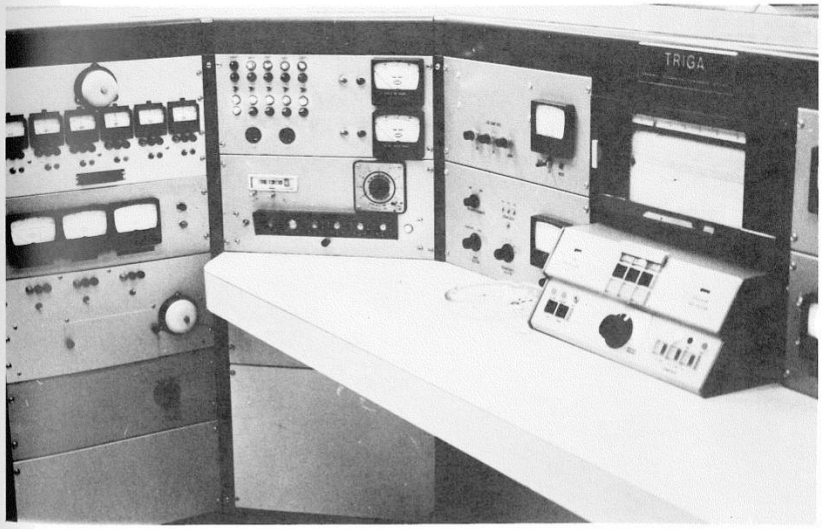
DAVID WHEELER

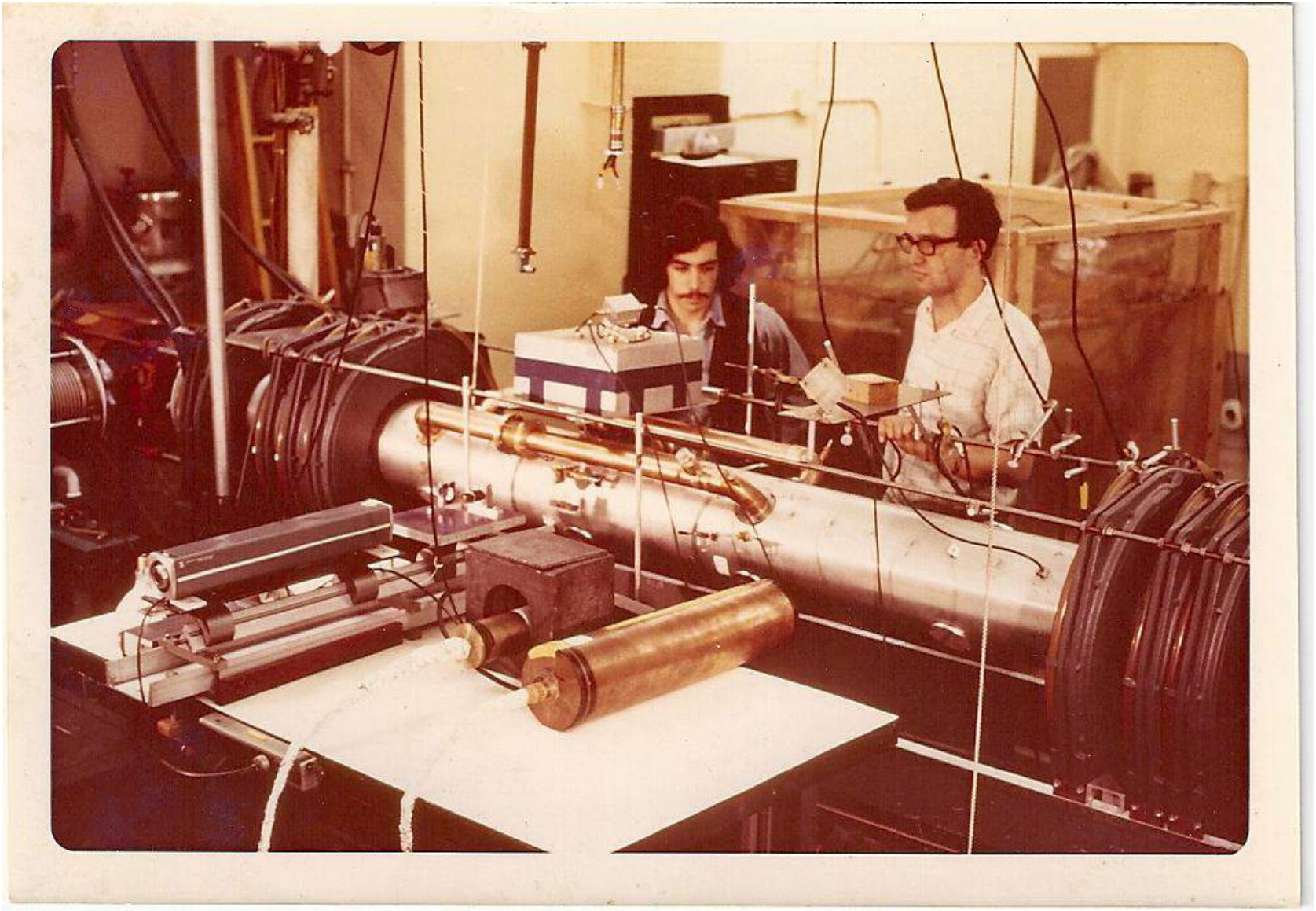


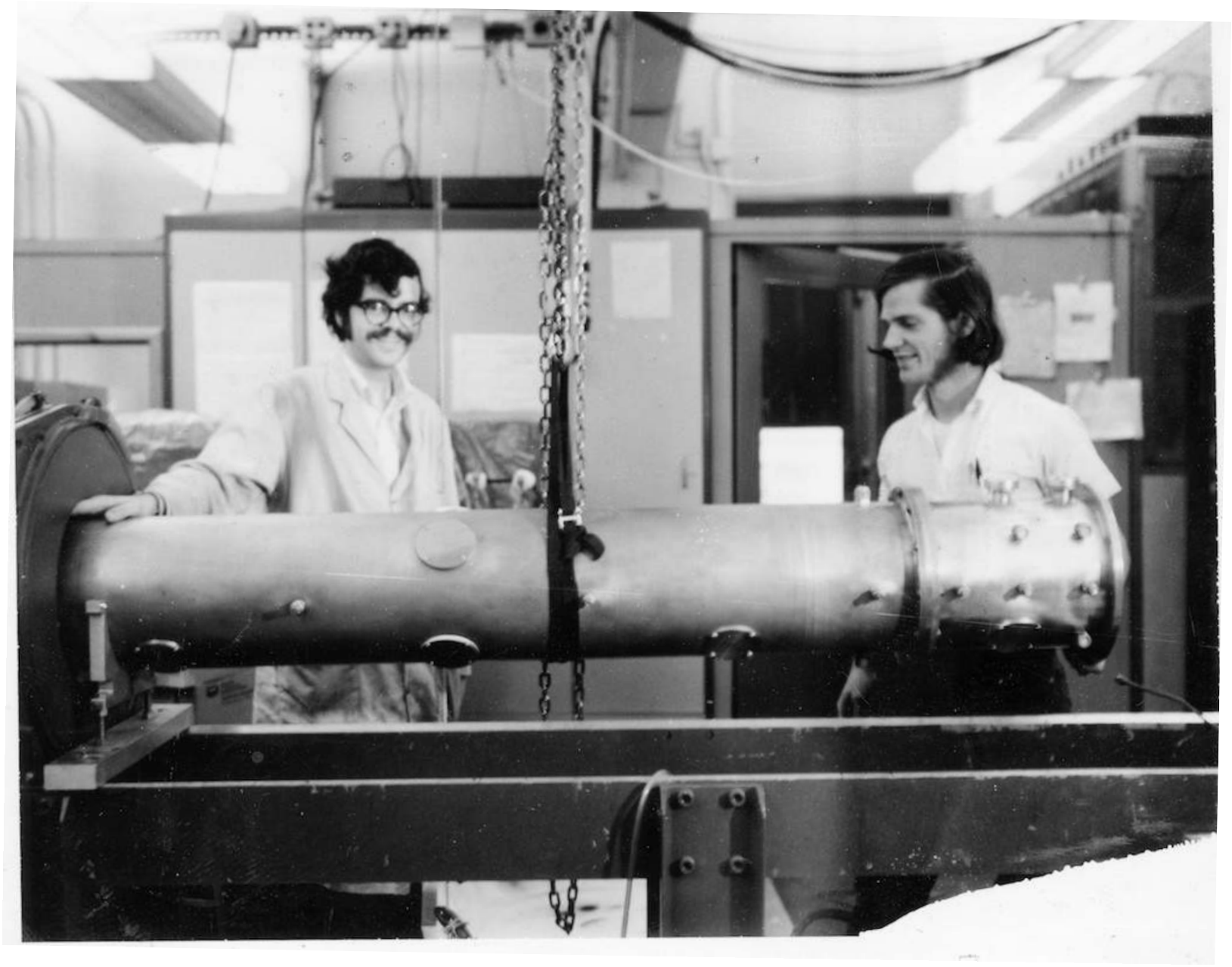


HERBERT GOLDSTEIN









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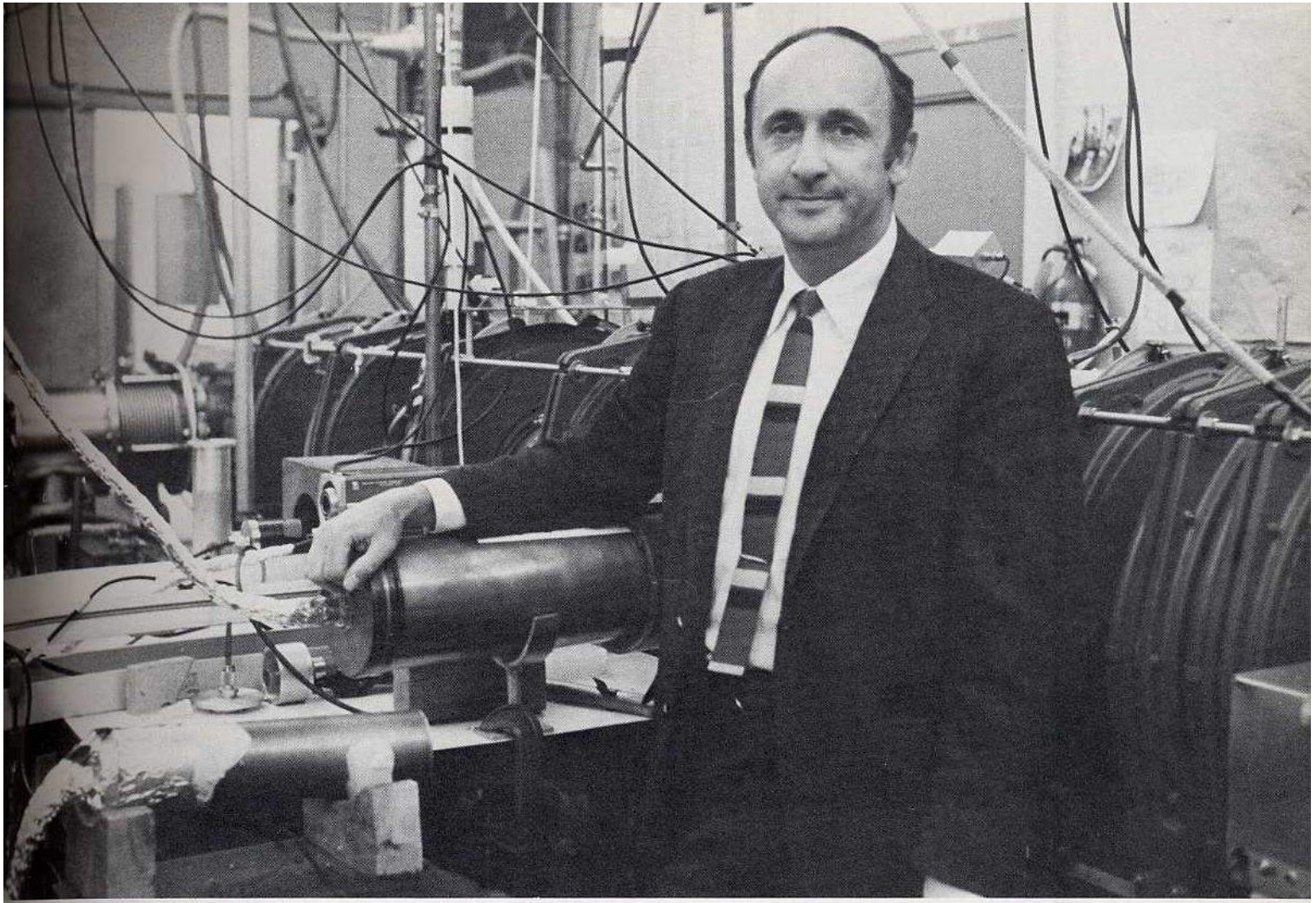
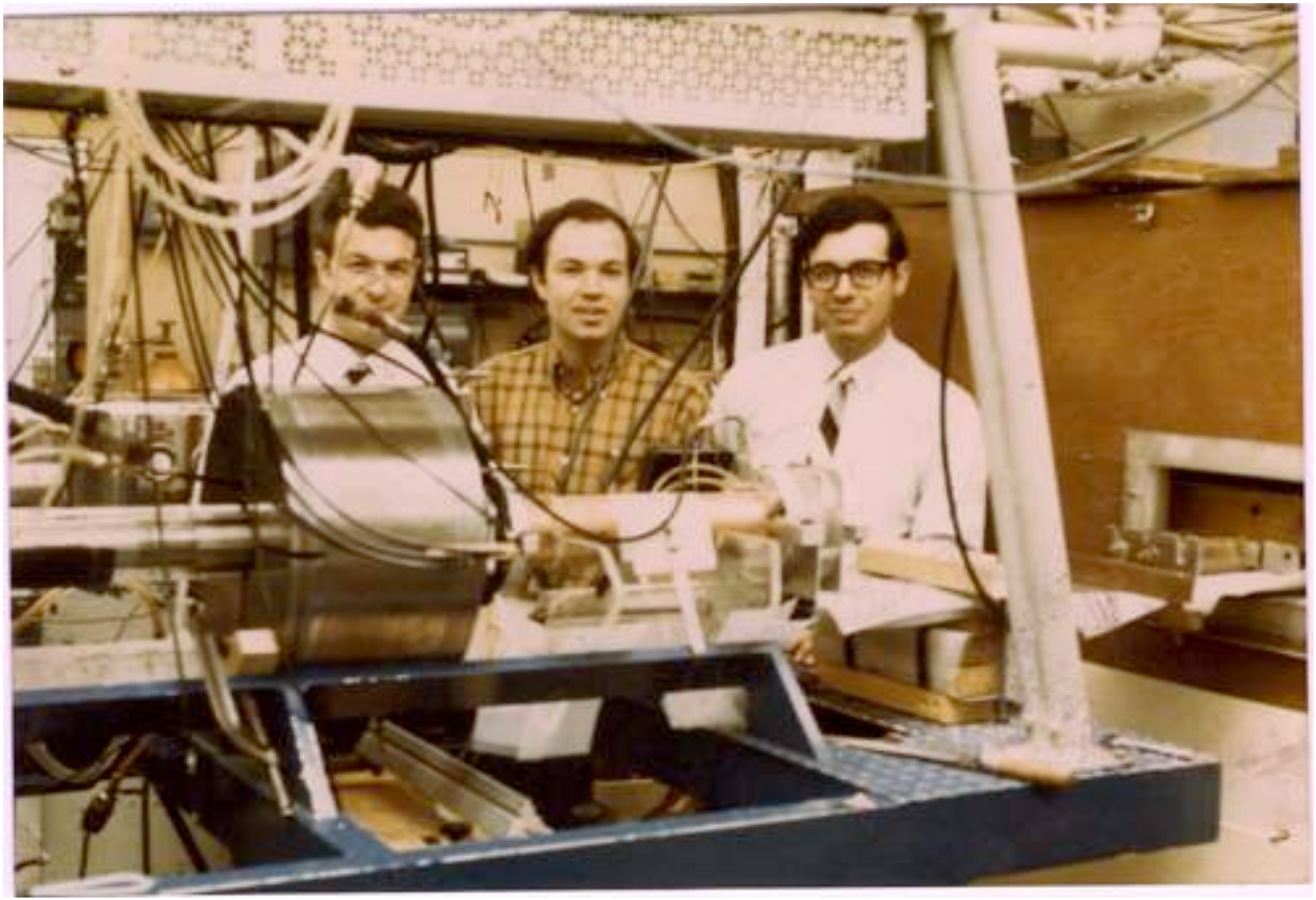
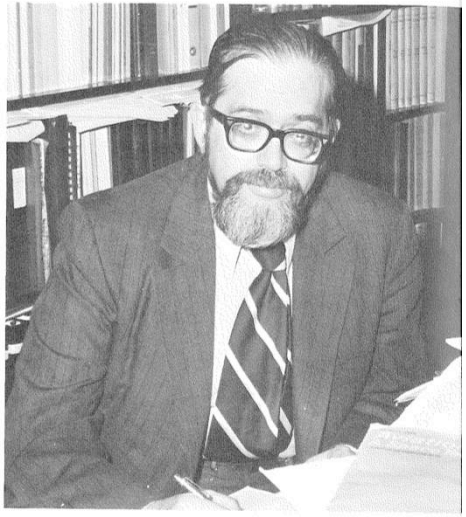


ROBERT GROSS

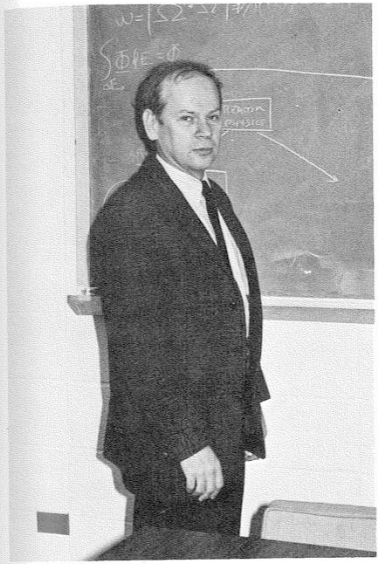


1975

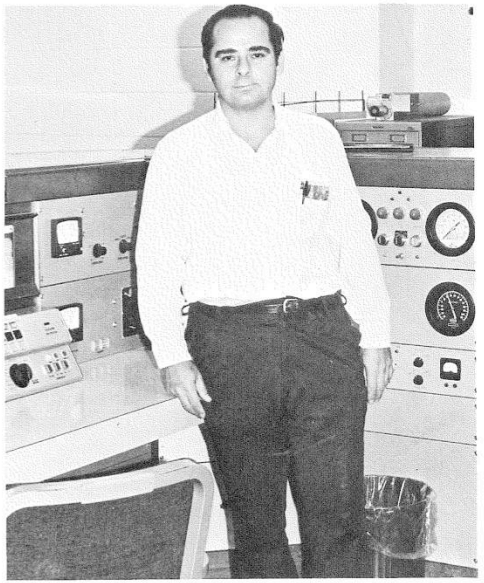
Professor John R. Dunning



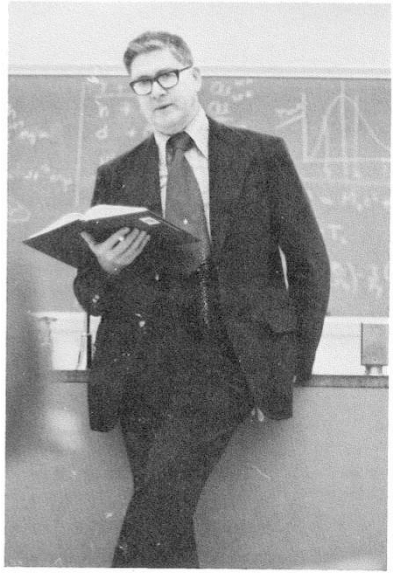
Professor Herbert Goldstein



Professor Leon J. Lidofsky

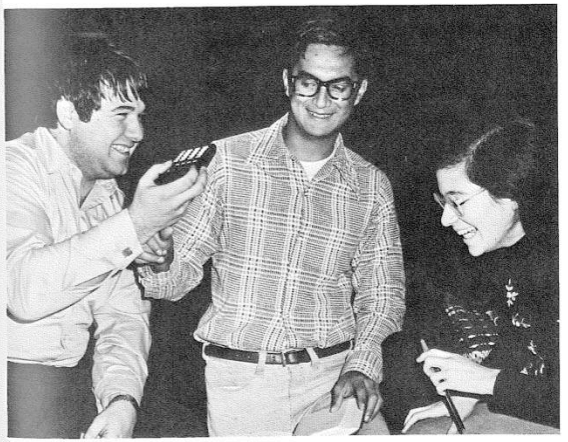


Professor Edward Melkonian



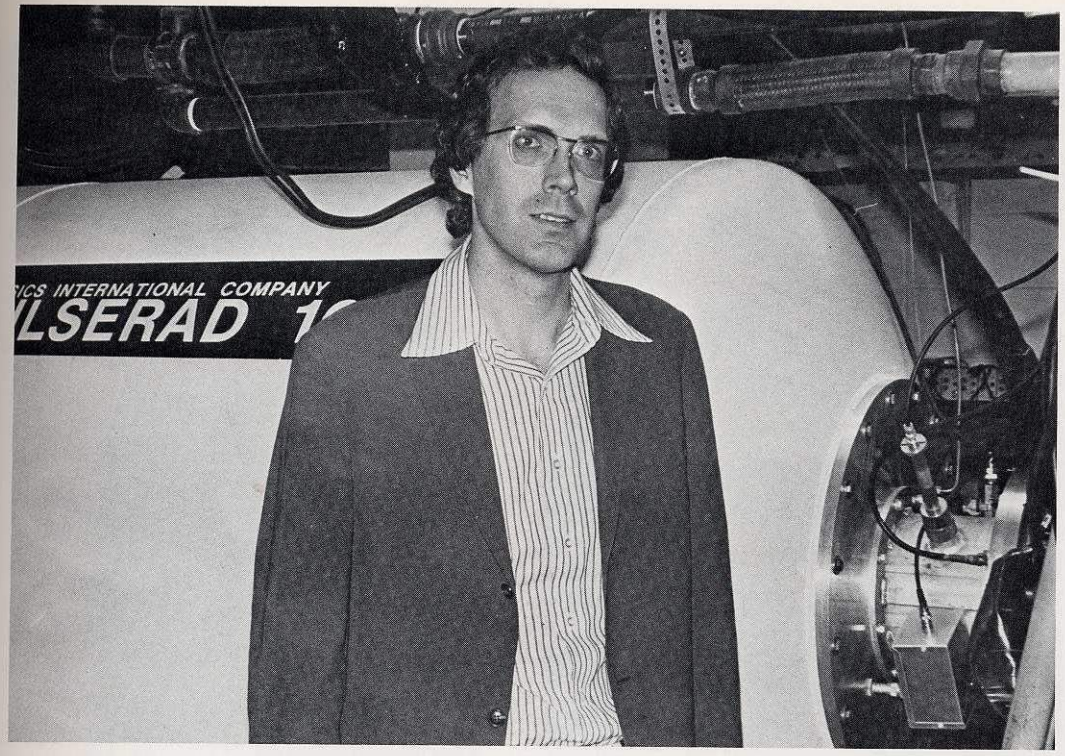
Professor William W. Havens, Jr.

"Do you still accept this belated lab report Sir?"



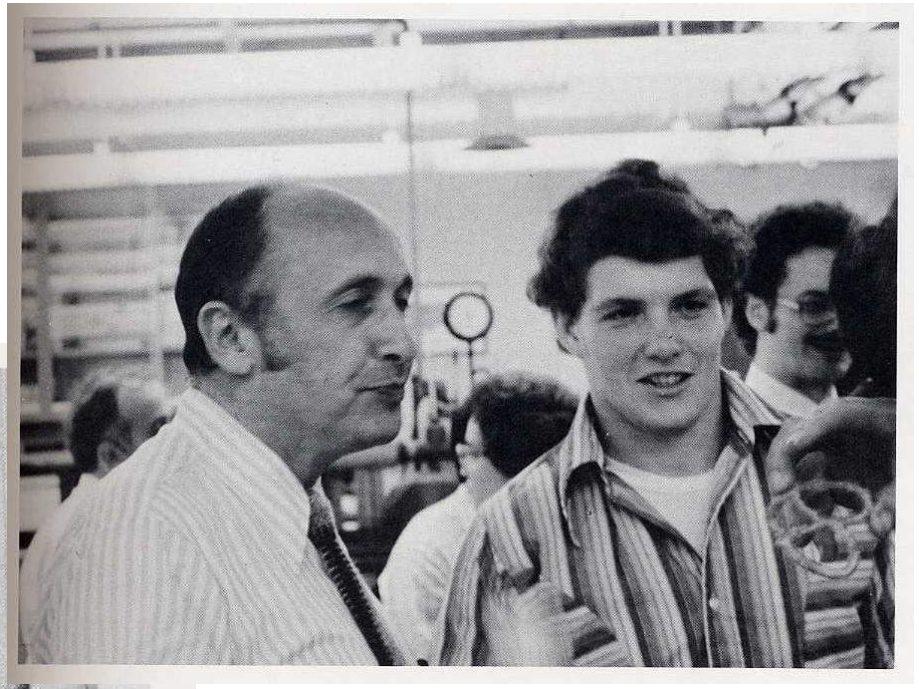
Bonifacio Hernandez

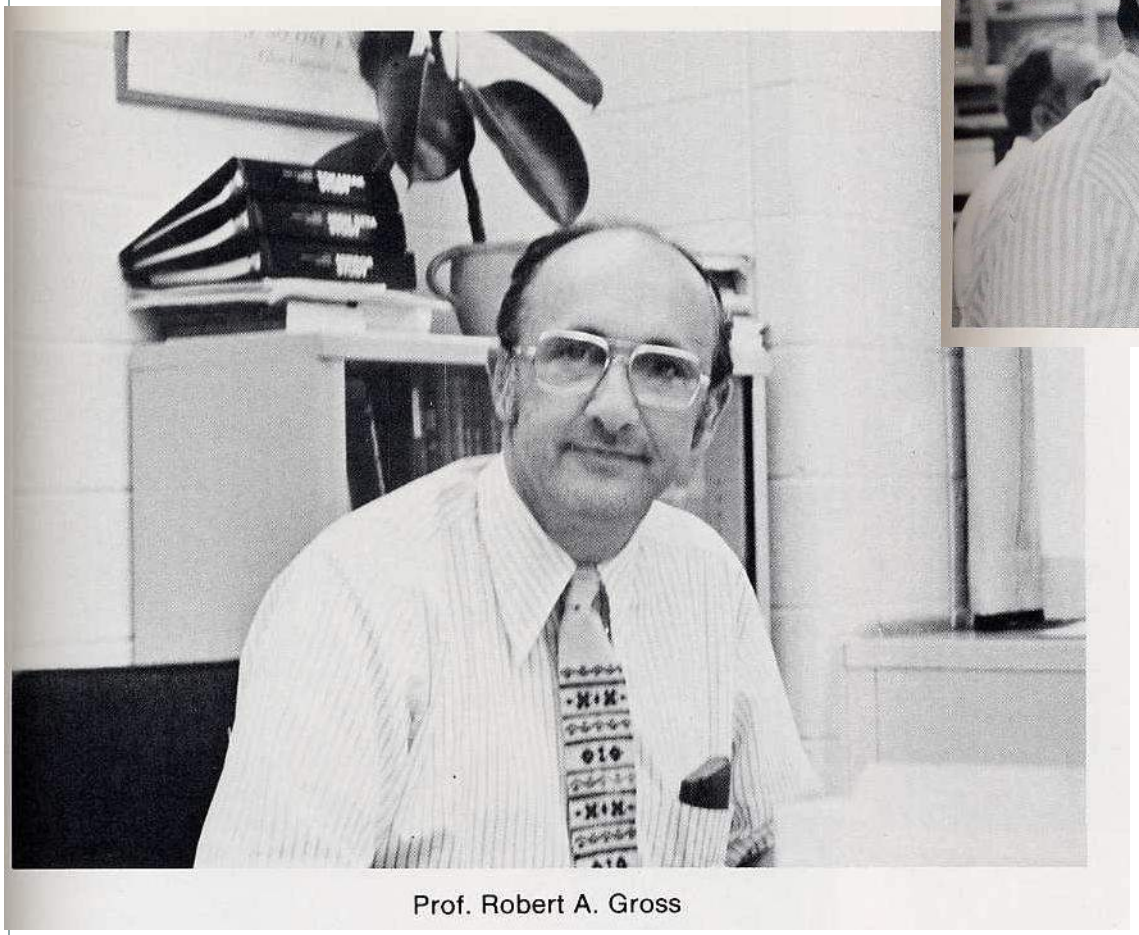
1975



Professor Thomas C. Marshall

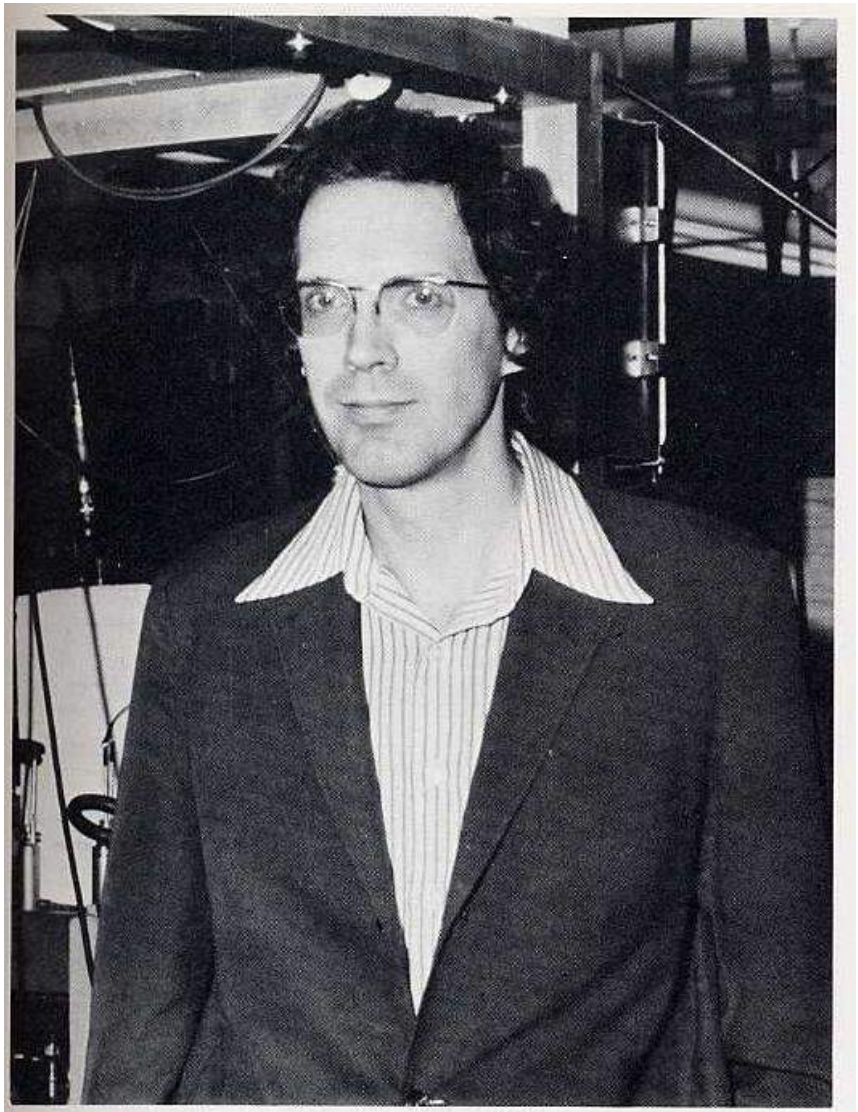
1976





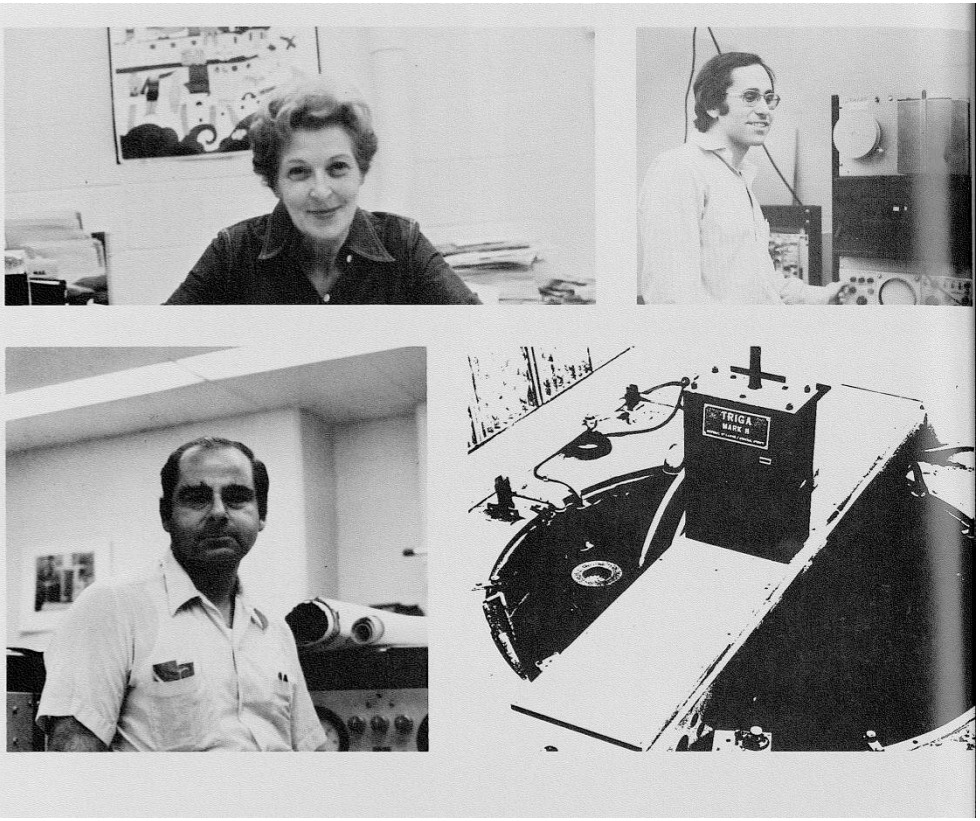
Prof. Robert A. Gross

1976

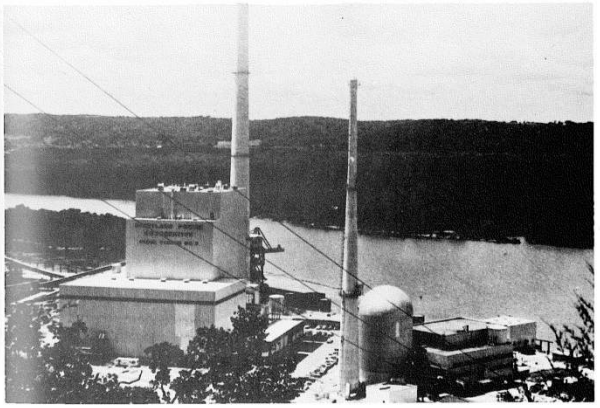


Prof. Thomas Marshall

1977



Prof. Leon J. Lidofsky



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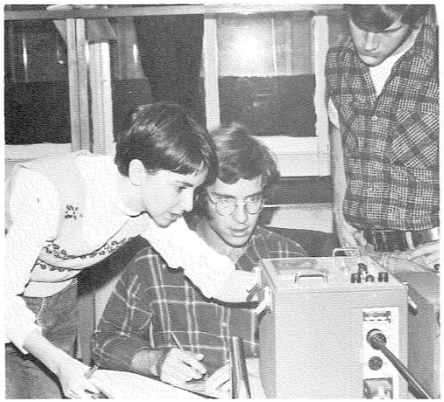
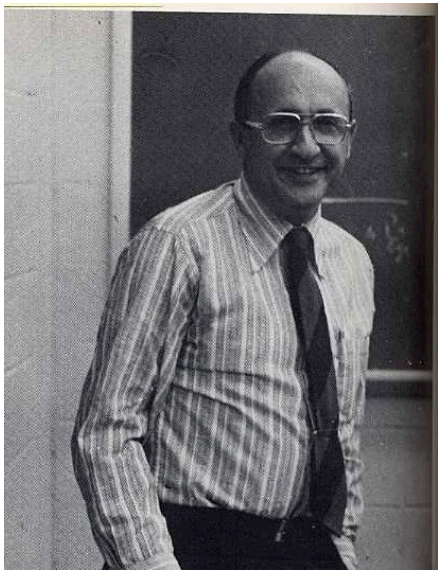
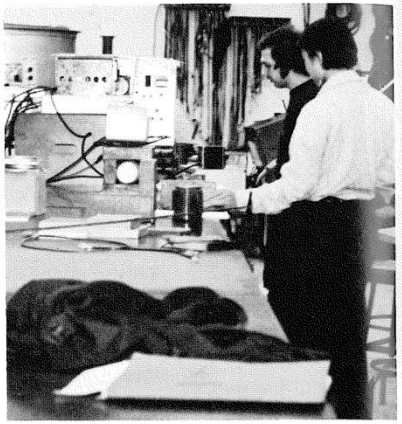
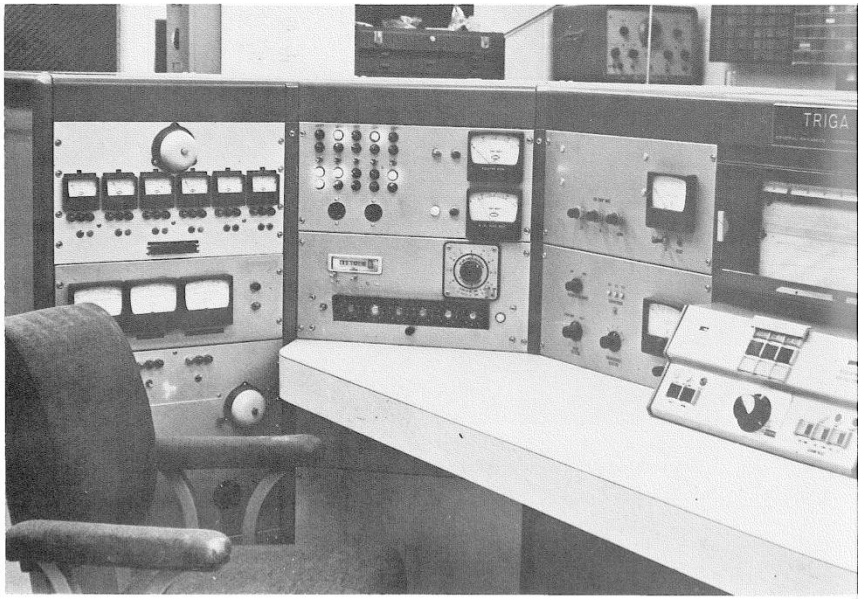








Prof. William W. Havens Jr.

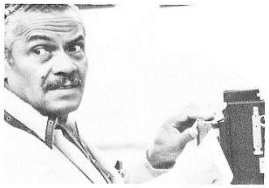
1978

Prof. Baghat

Jerry Bay vs. Al Pisano

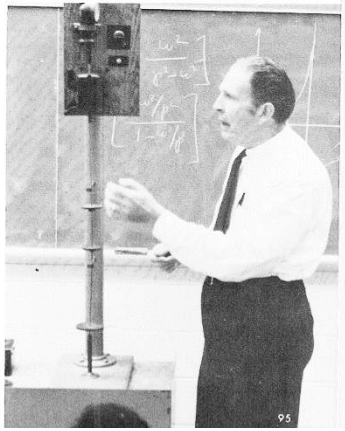
'rof. Chu

Prof. Fuller

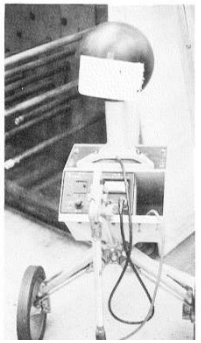


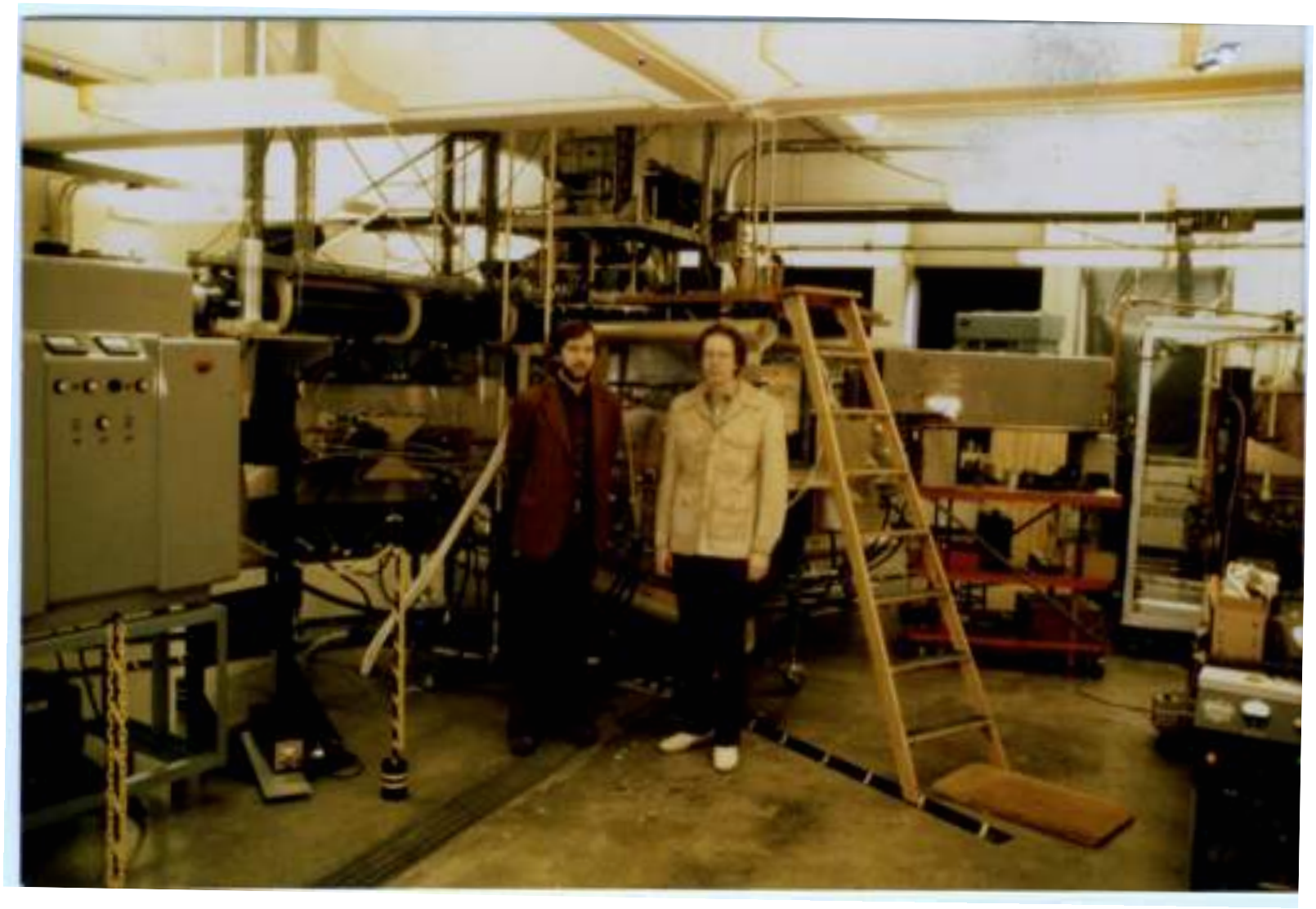
Harold Thompson with the antique camera.

Joe Evanish

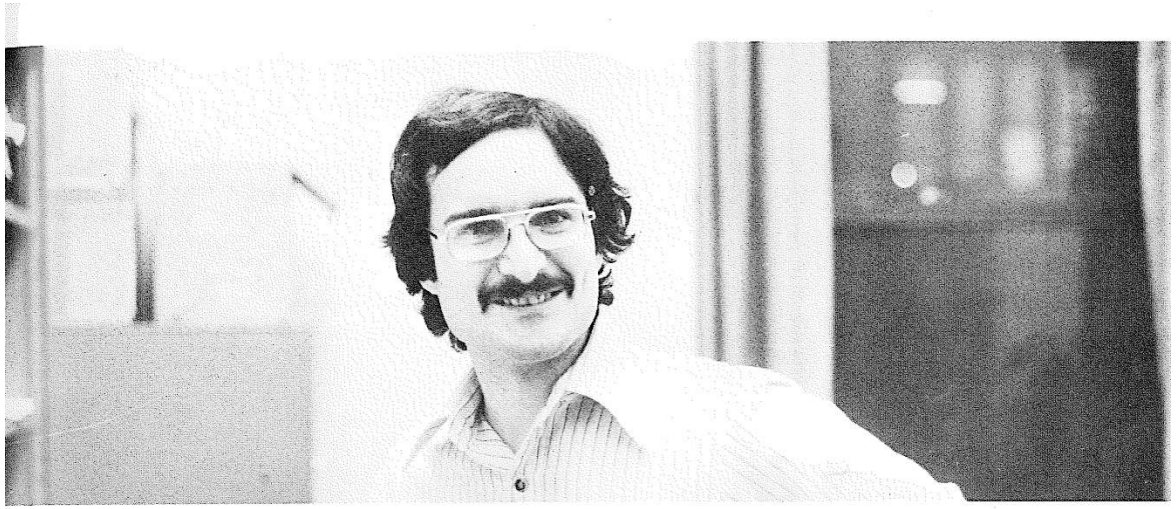


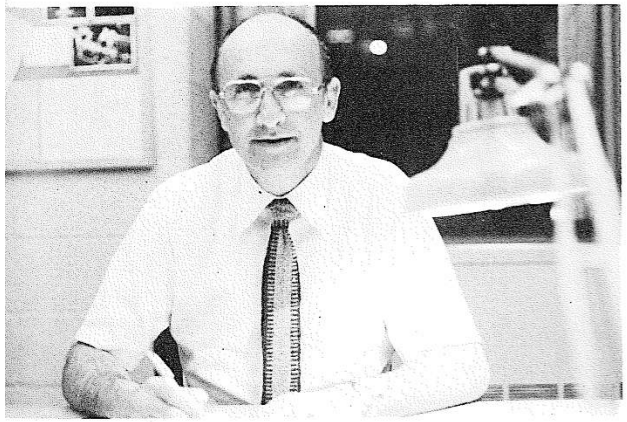
95

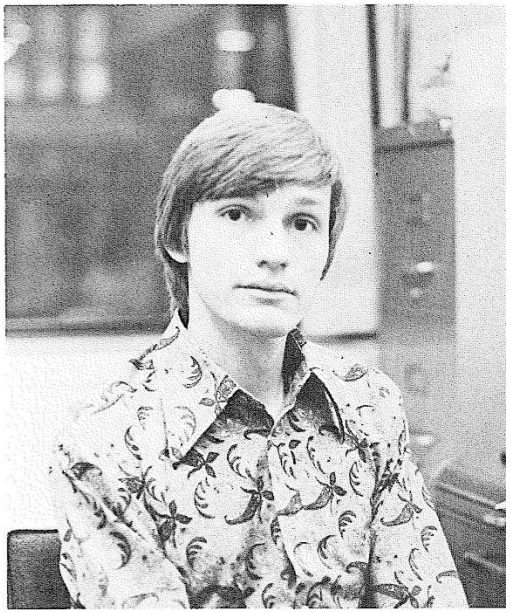




1979

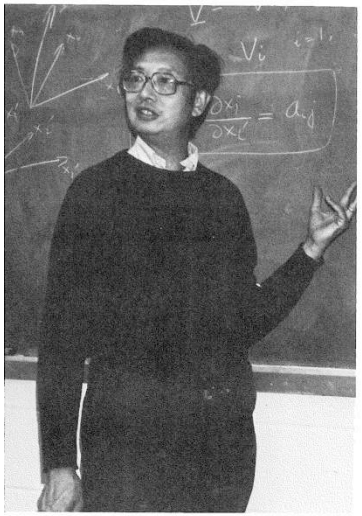




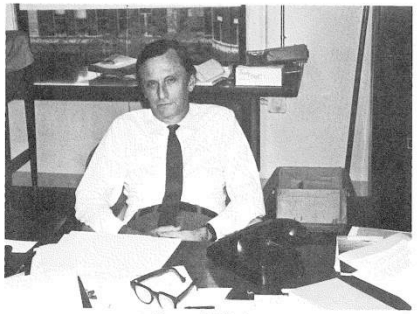


1980-1985

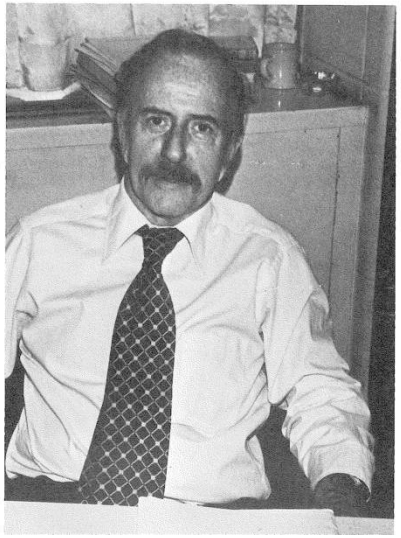
1980



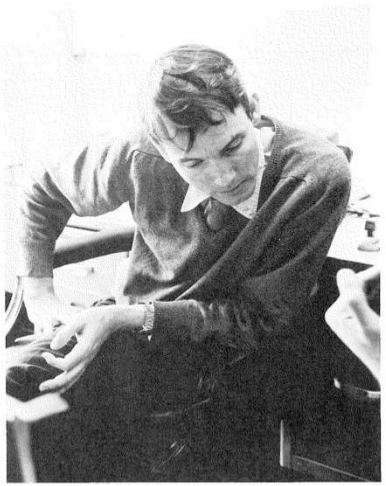
C. K. Chu



Henry M. Foley

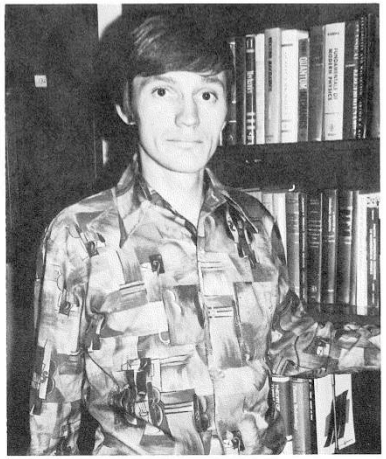


Robert A. Gross, Chairman

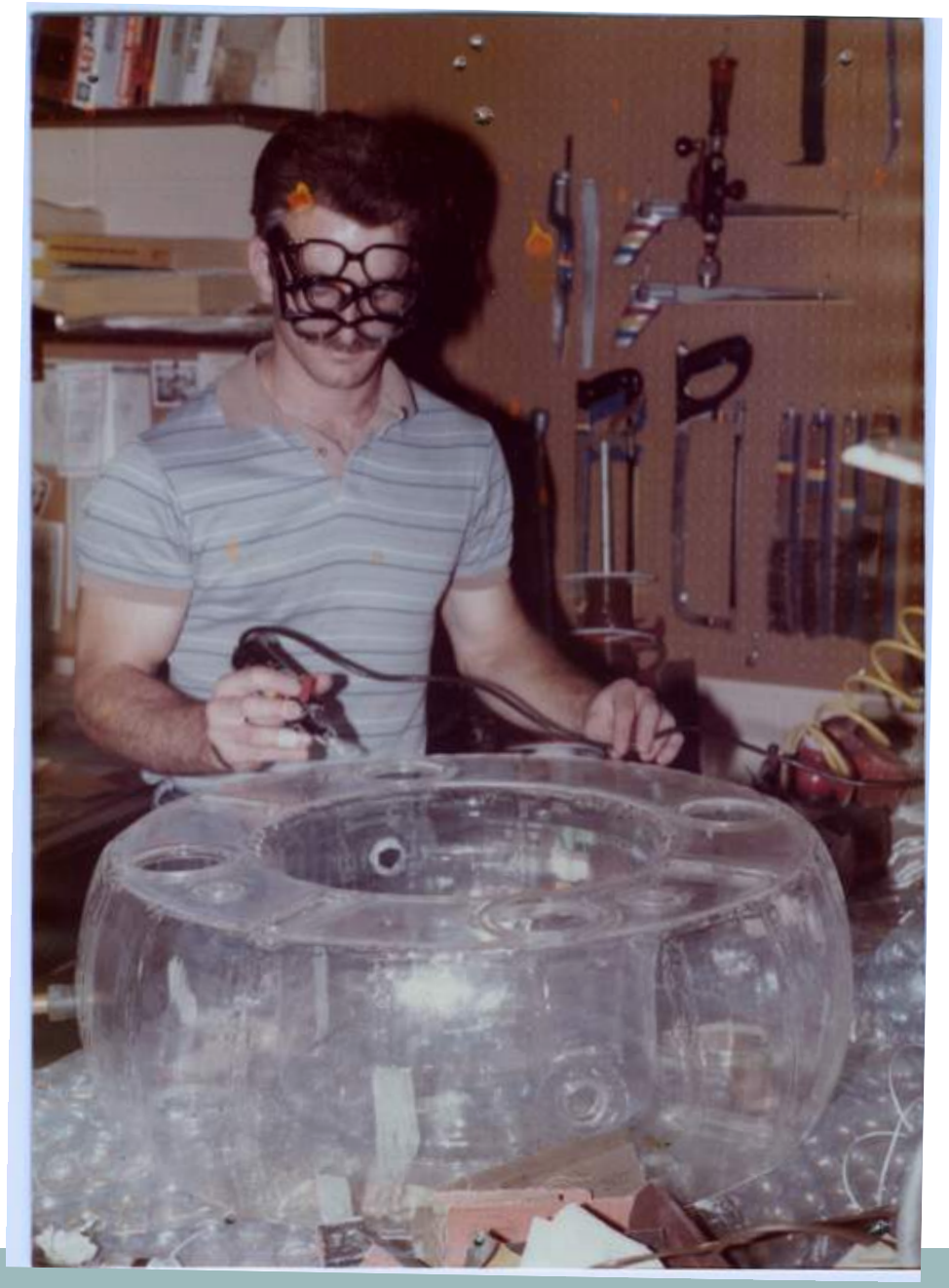


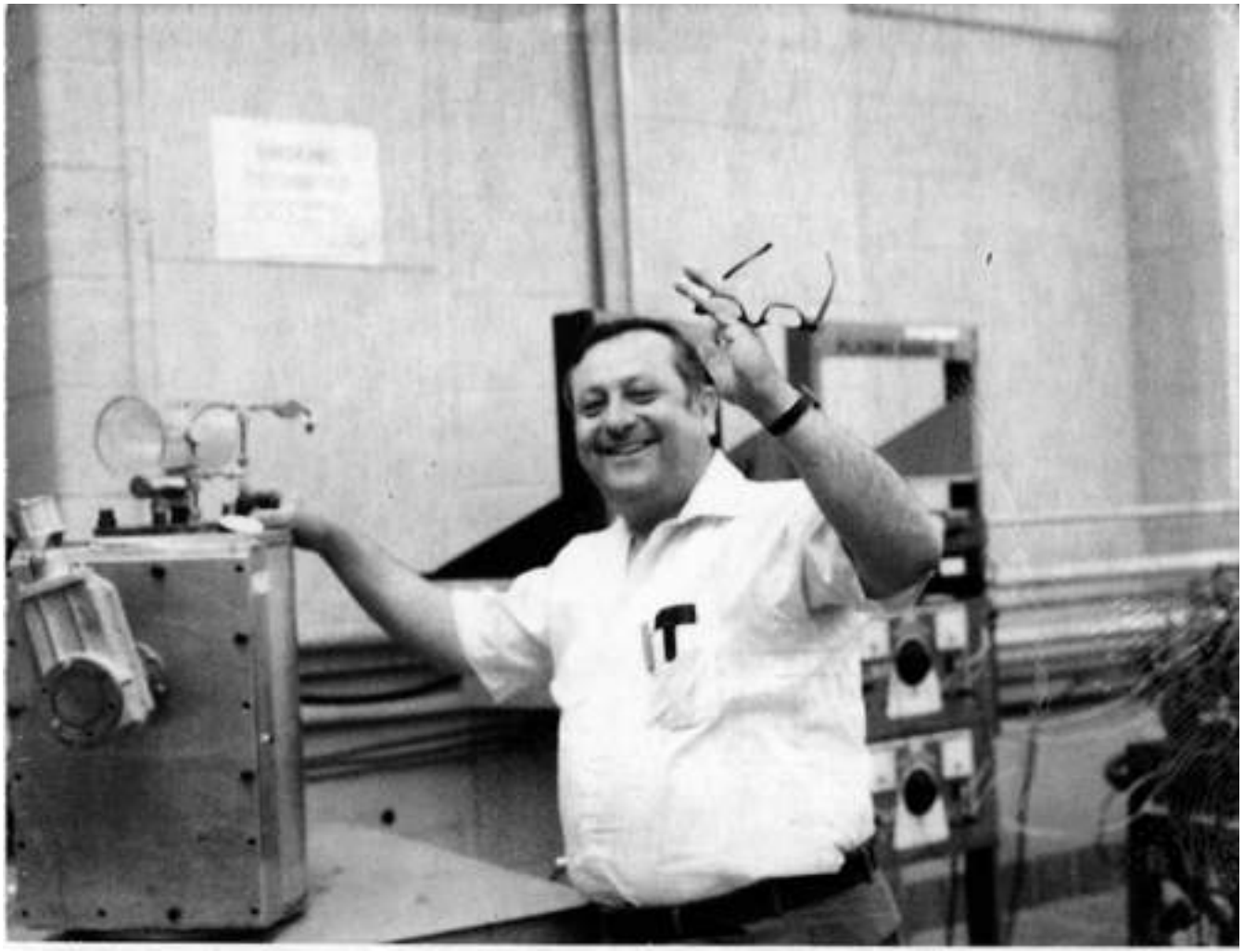
William Happer, Jr.

William W. Havens, Jr.

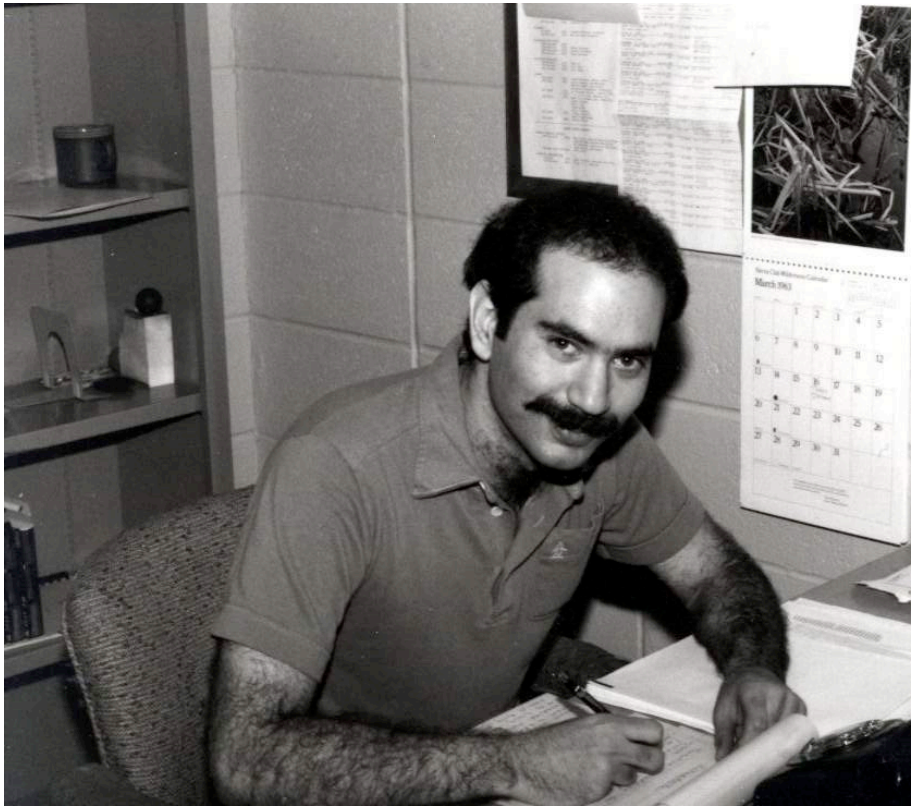


R. Shayne Johnston






210



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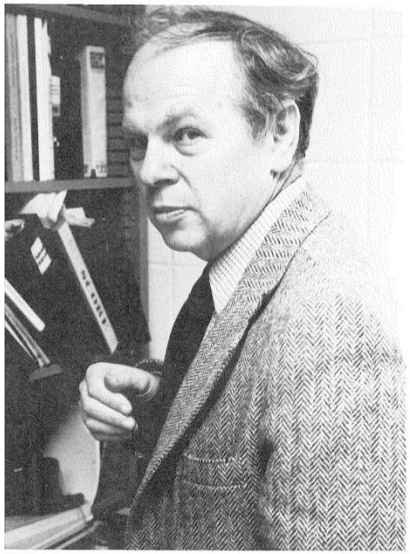
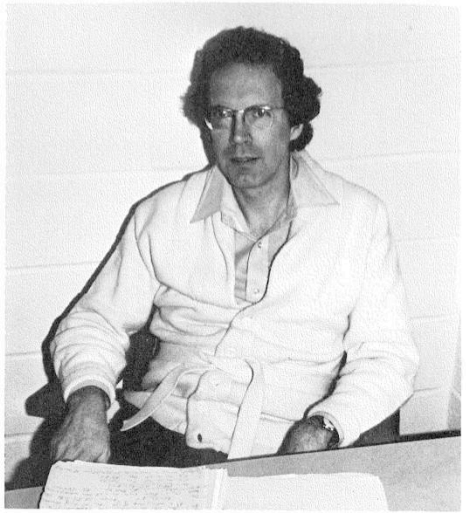
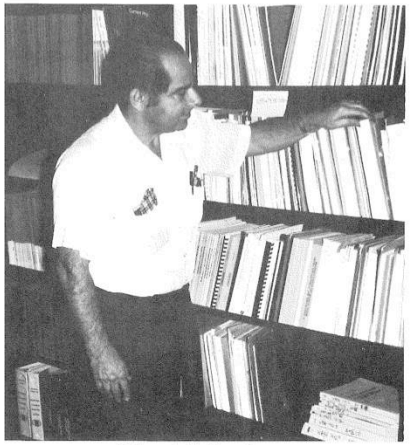


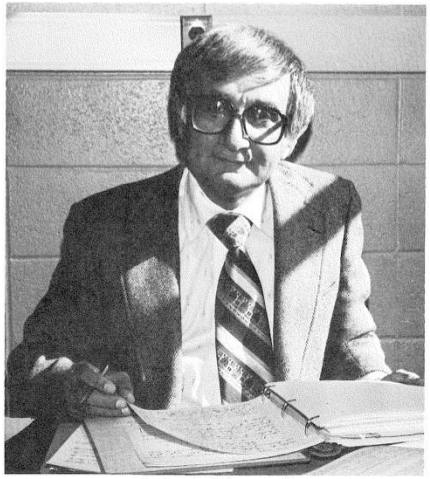
Leon J. Lidofsky



Thomas C. Marshall

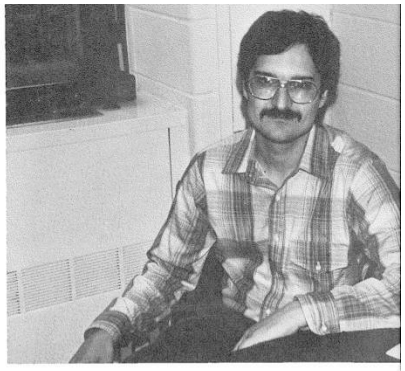


Edward Melkonian



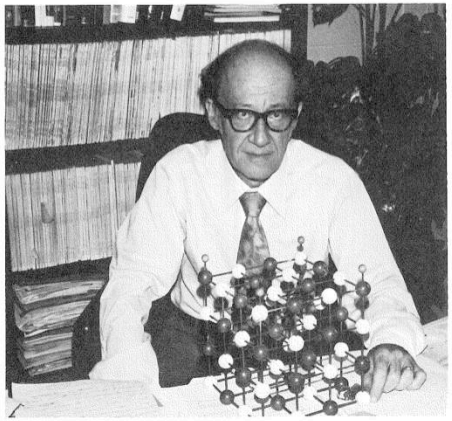
Amir N. Nahavandi

Gerald A. Navratil

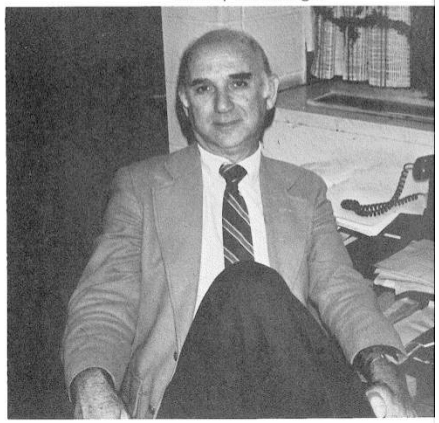


S. Perry Schlesinger

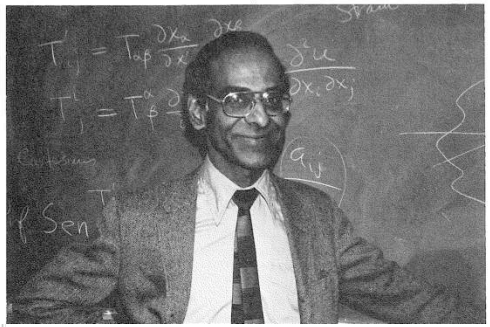
Arthur S. Nowick

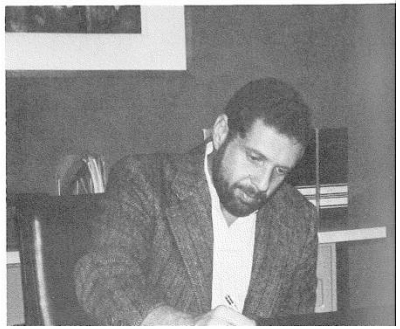


Amiya K. Sen

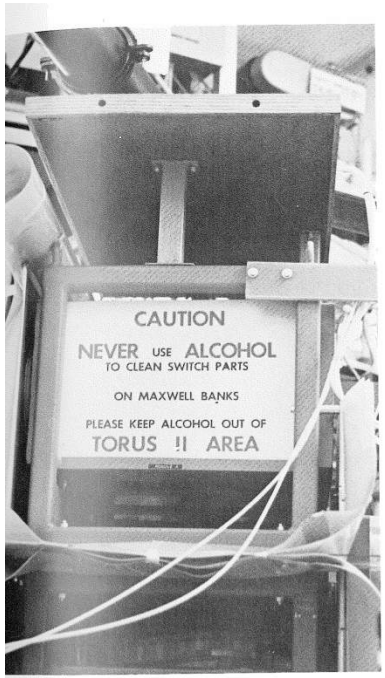


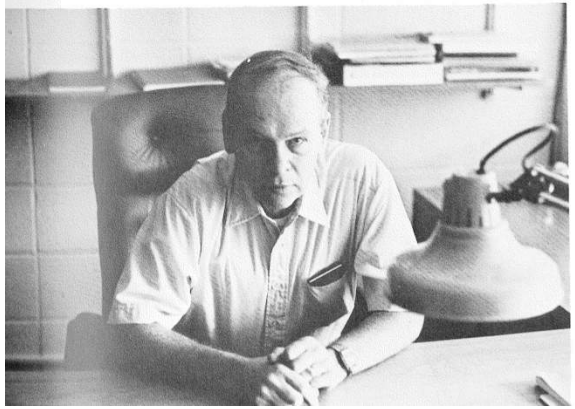
Malvin C. Teich



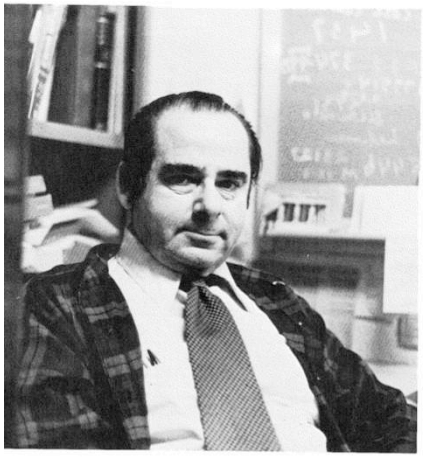


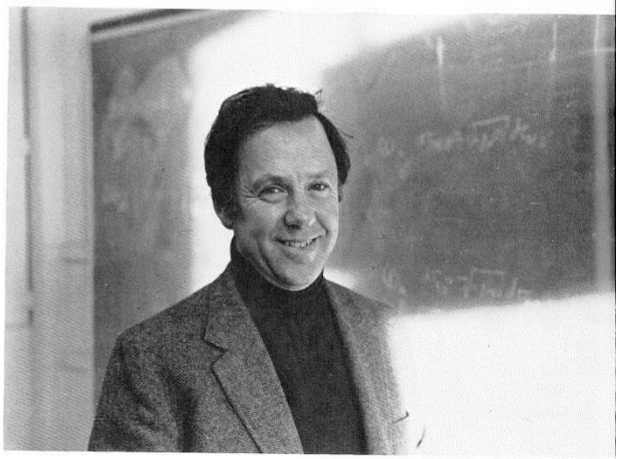
1981





Left: Leon J. Lidofsky.





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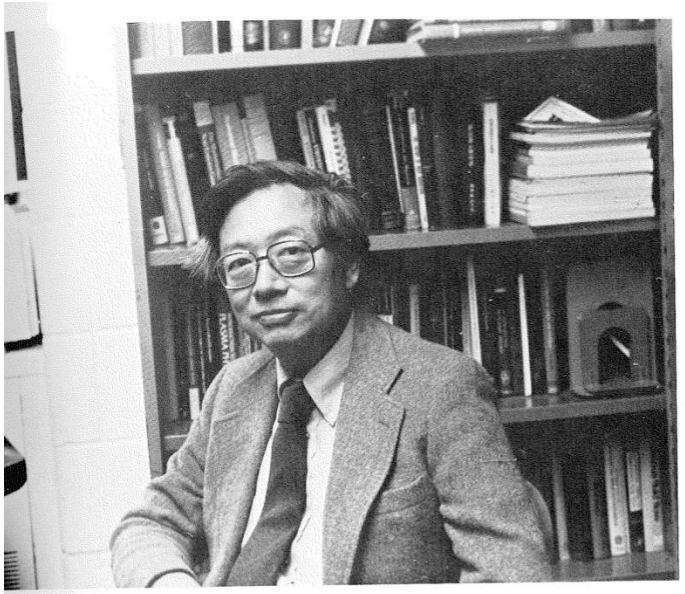
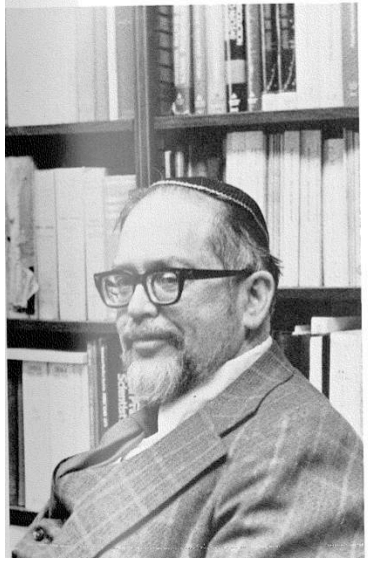
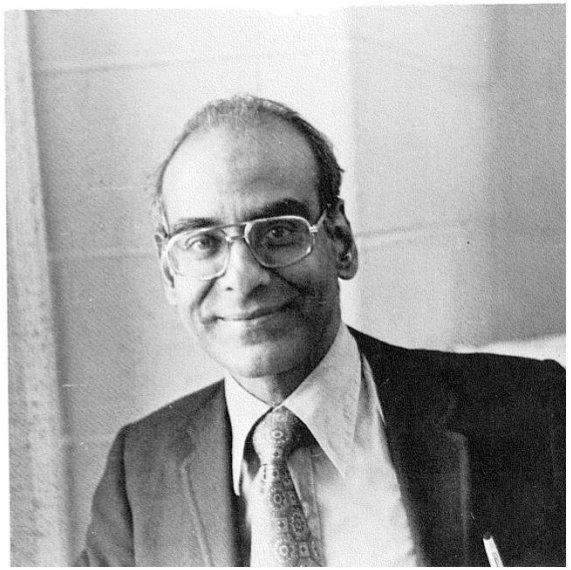
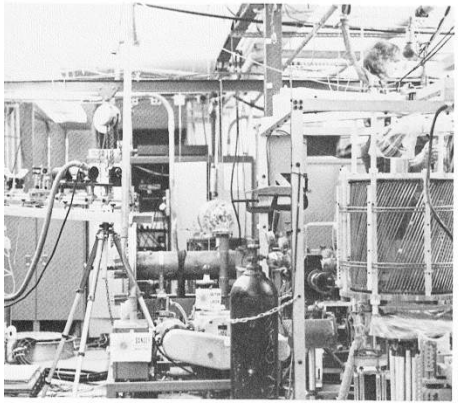
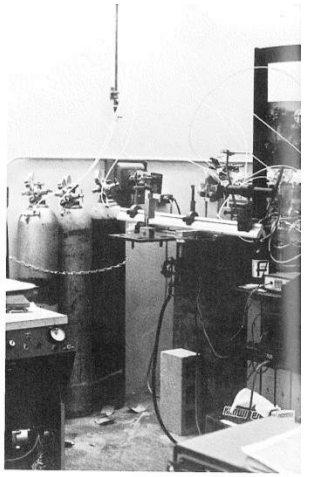


Clockwise from below: Amiya K. Sen, Herbert Goldstein, Malvin Ruderman, Edward Melkonian, Henry M. Foley, Chia-Kun Chu.

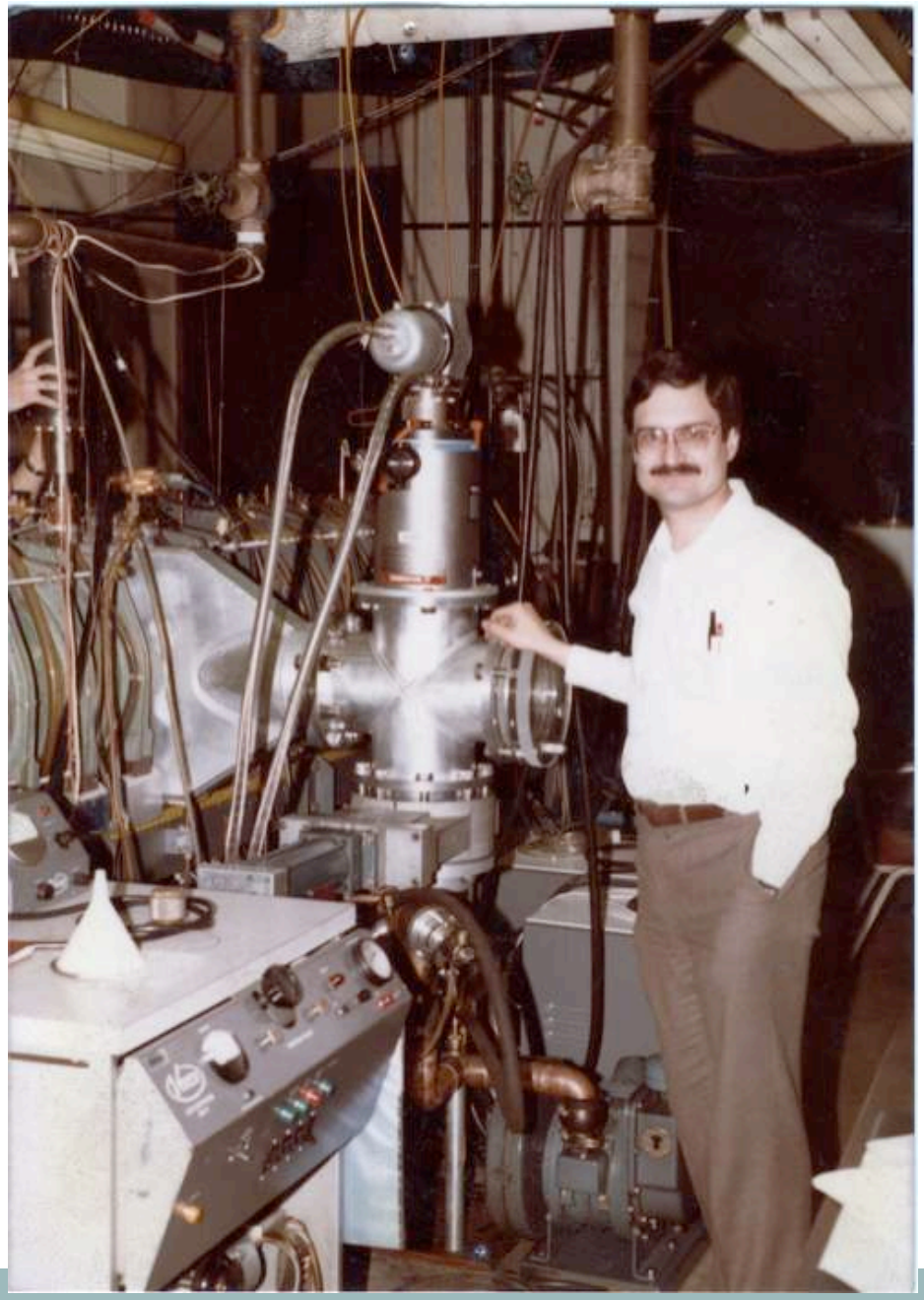




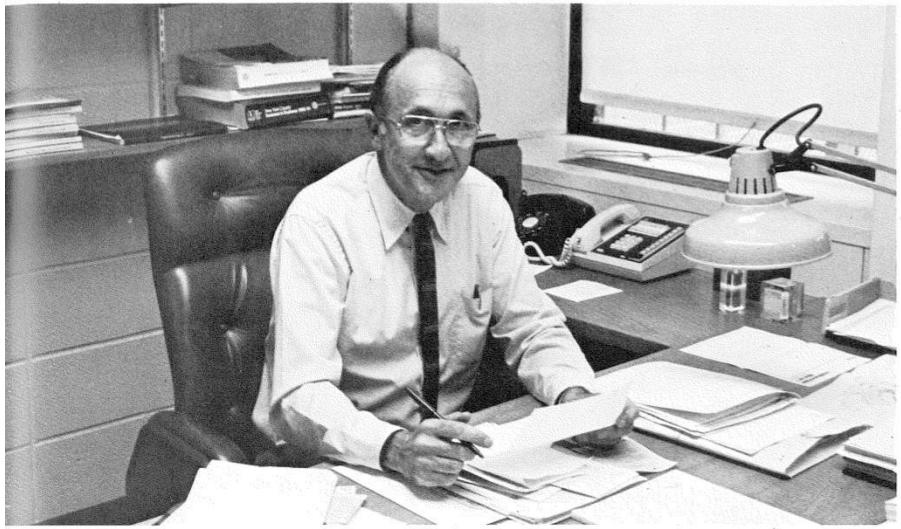




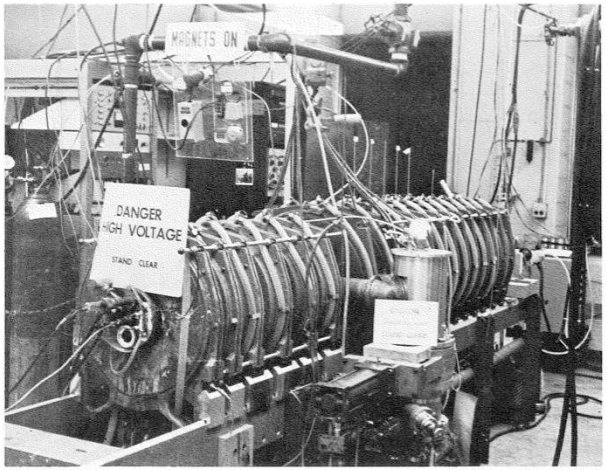
Right: Thomas C. Marshall; Opposite page: Arthur S. Nowick.

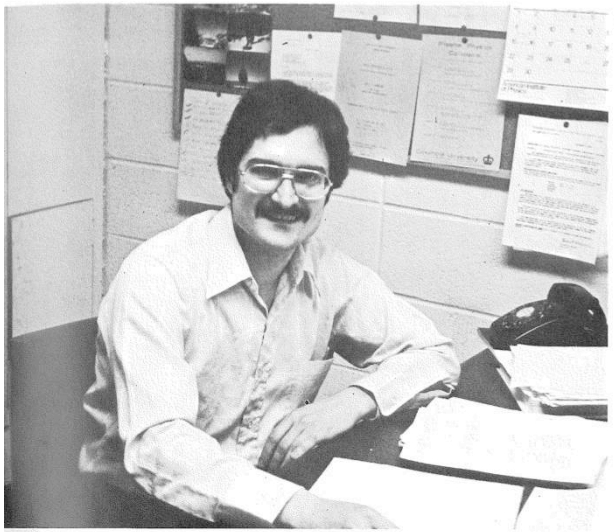


1982



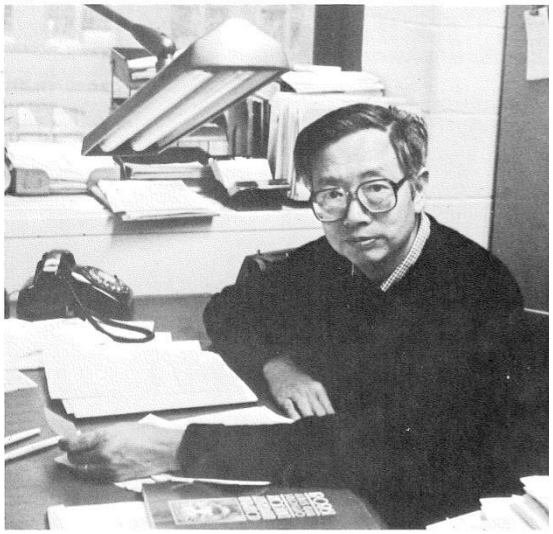
Robert A. Gross





Gerald A. Navratil

Chia Kun Chu

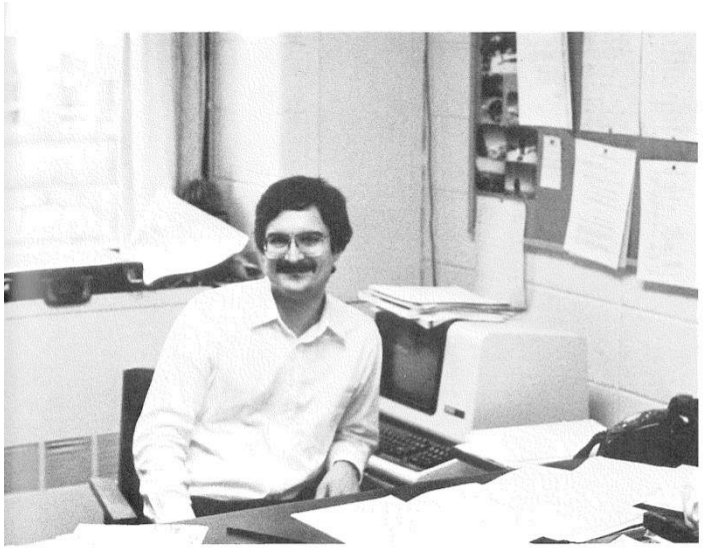


1982

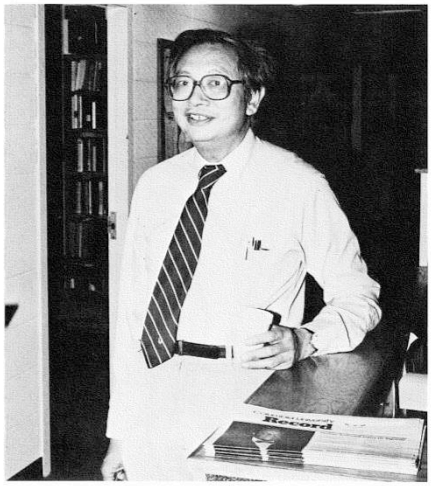
1983

Thomas C. Marshall

1984

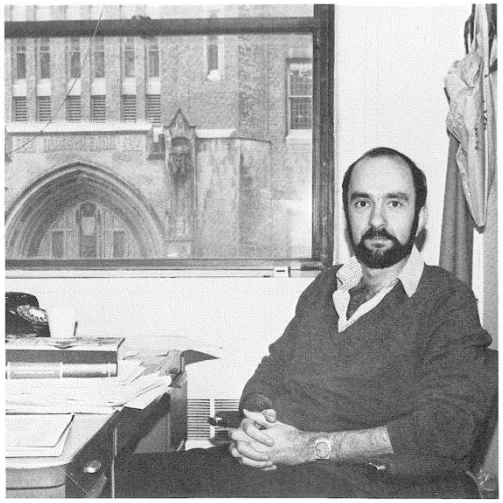


Gerald A. Navratil

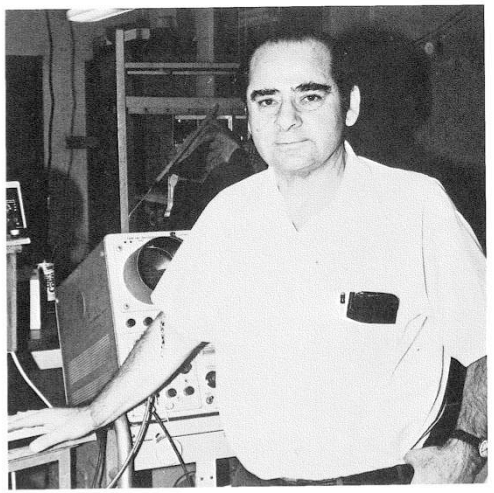


Chia Kun Chu, Chairman

Thomas C. Marshall

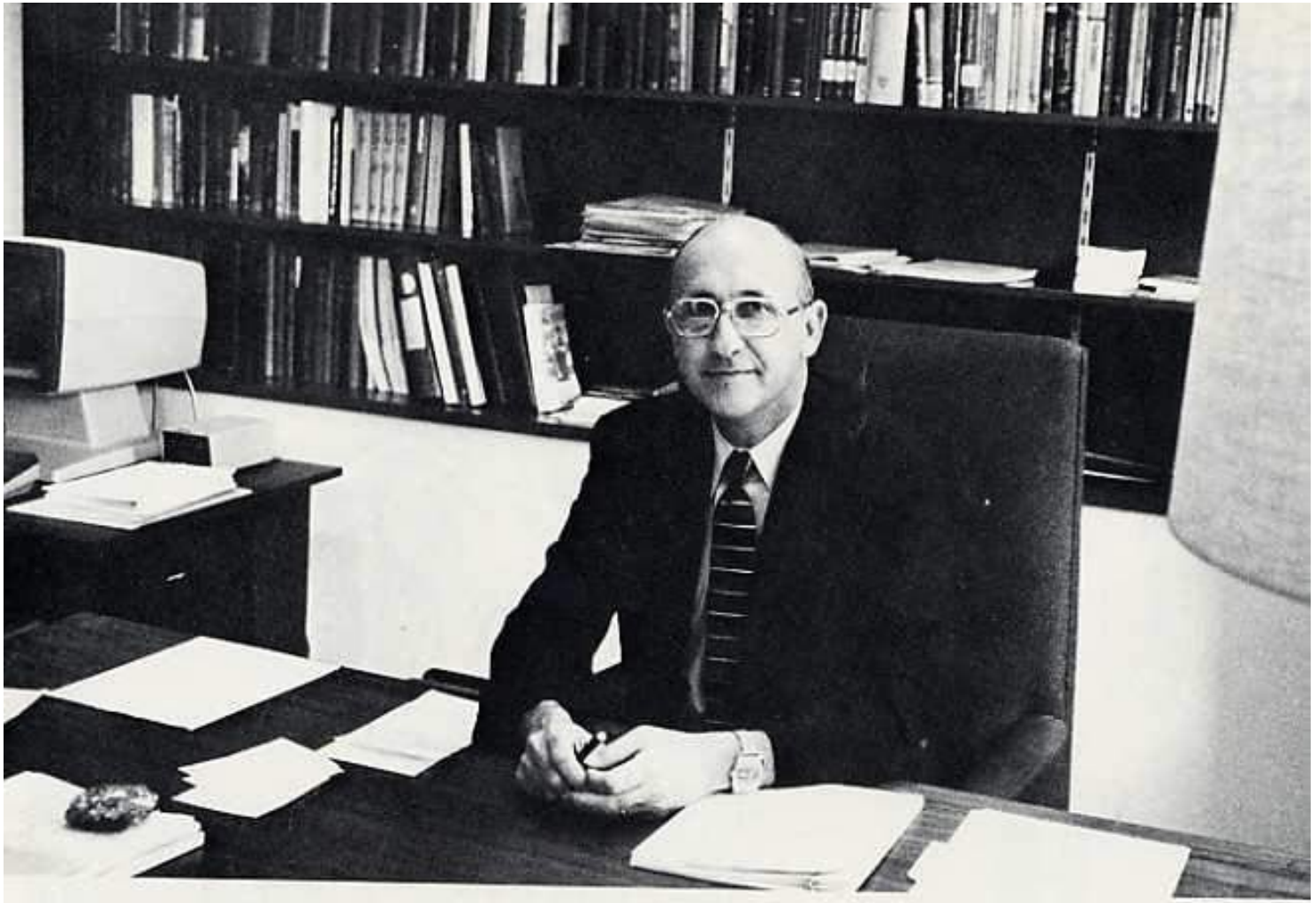


Michael Tabor



Edward Melkonian

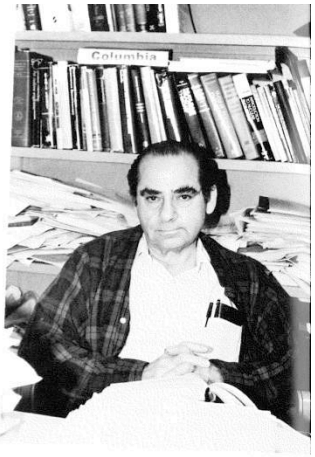
1984



Robert Gross, Dean

1985

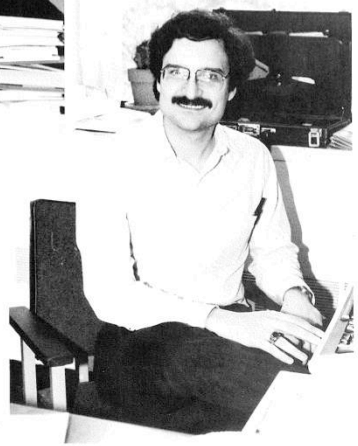
Chia Kun Chu, Chairman



Edward Melkor

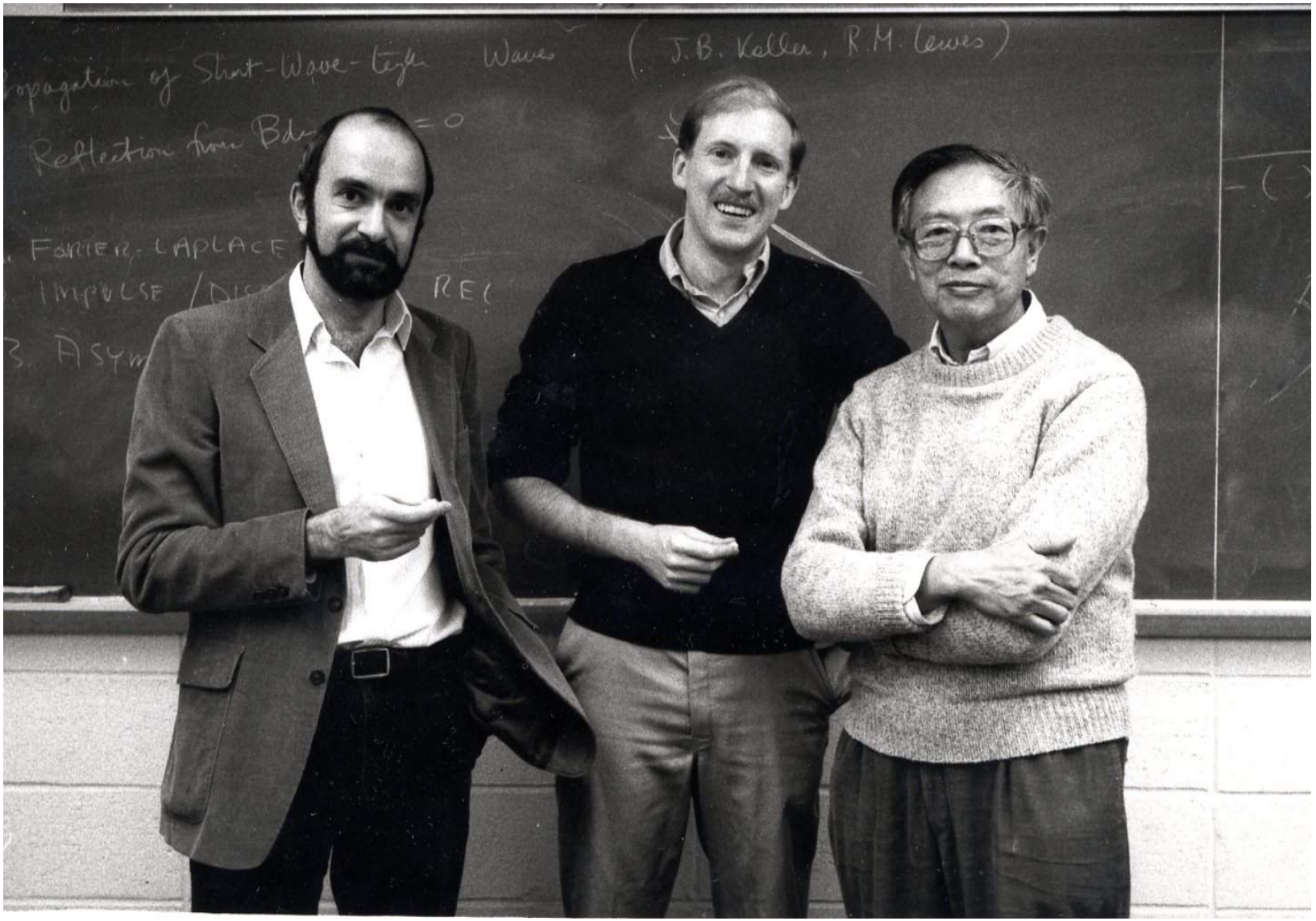
Thomas Marshall

Michael Tabor

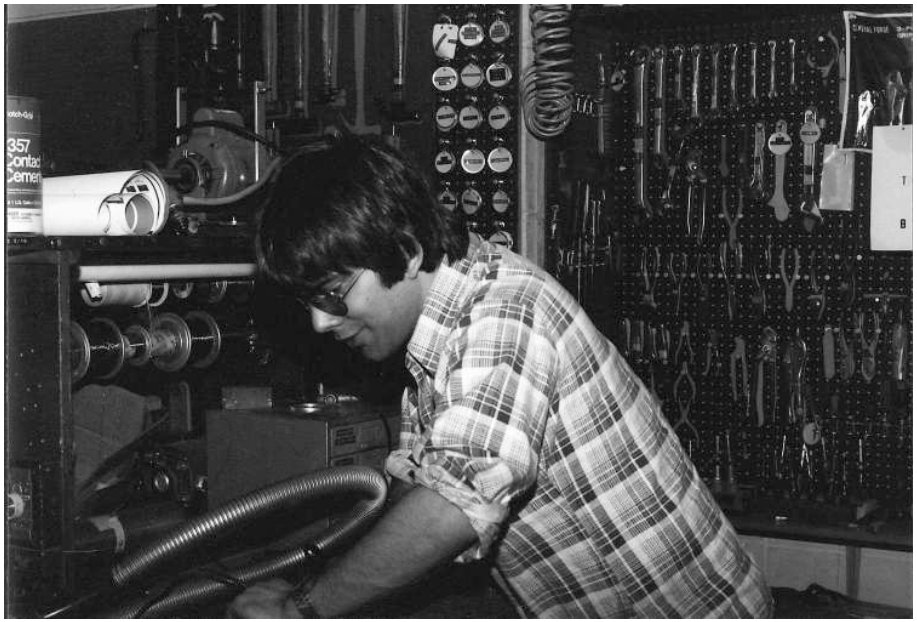


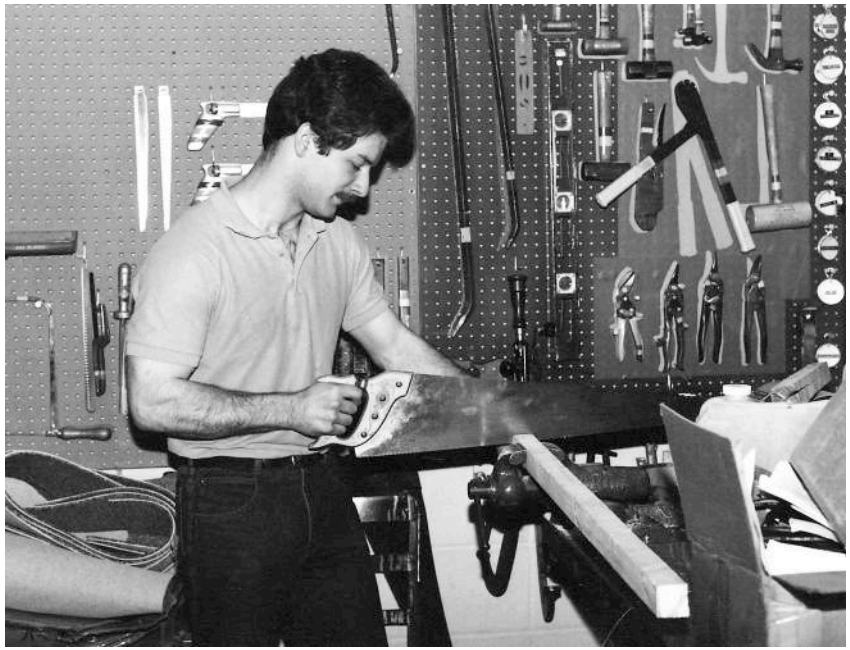
Gerald Navratil

Amitava Bhattarcharjee


Propagation of Short-Wave-Length Waves (J.B. Keller, R.M. Lewis)
Reflection from Bdy
FOURIER-LAPLACE
IMPULSE
B. ASYM

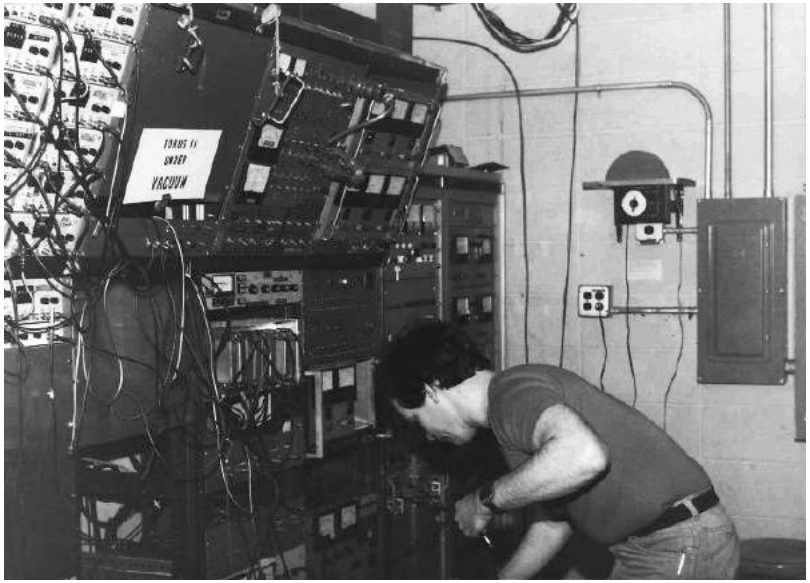
1980-1985

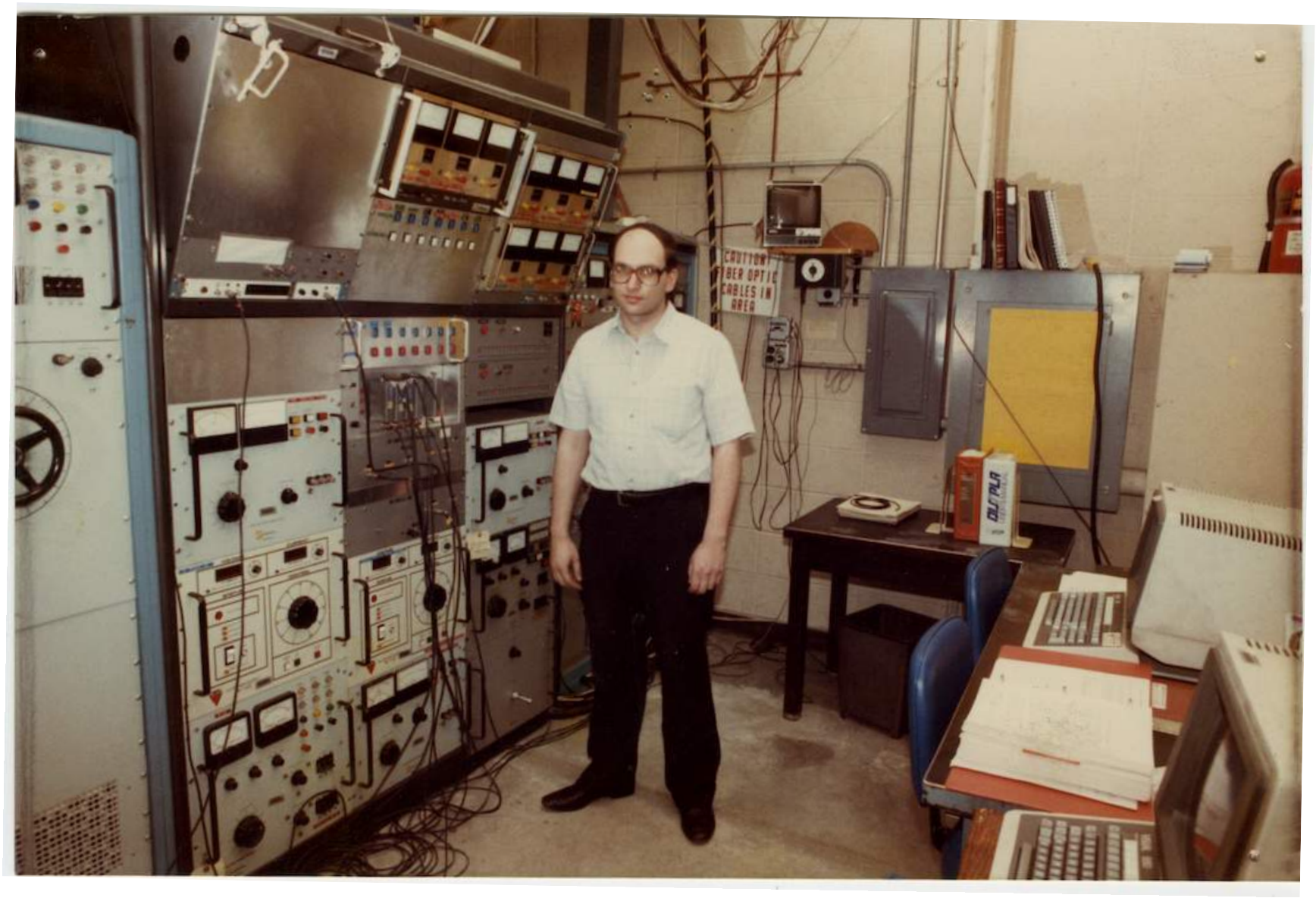




1980-1985

1980-1985



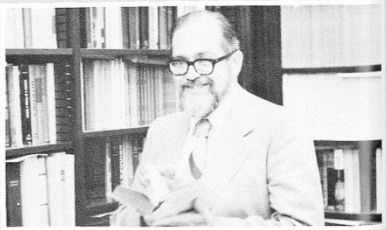

CAUTION
FIBER OPTIC
CABLES IN
AREA

1980-1985

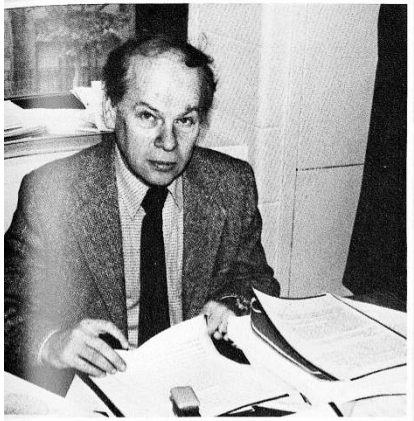
1986

C.K. Chu

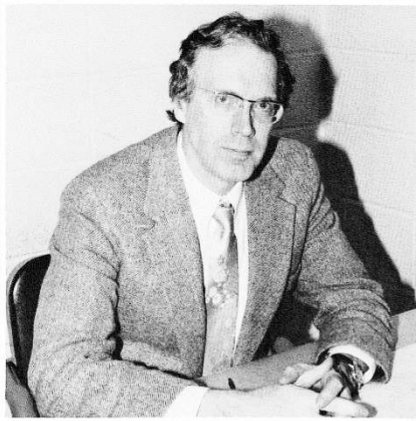
Amitava Bhattacharjee



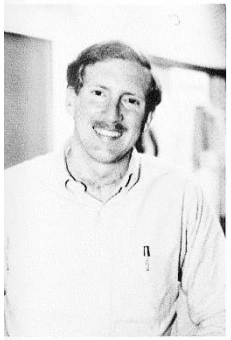
Herbert Goldstein



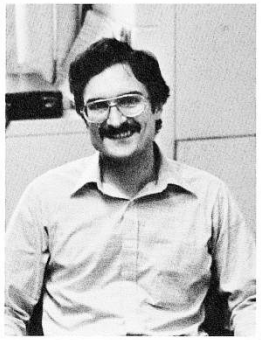
Leon Lidofsky



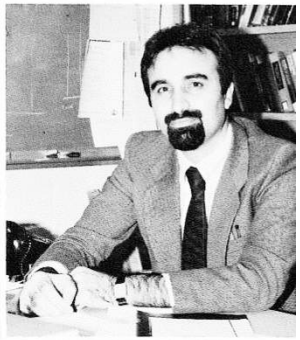
Thomas Marshall



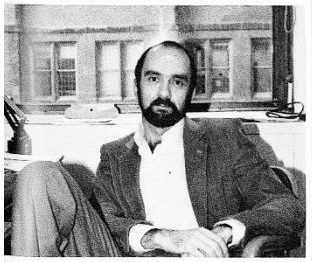
Michael Mauel



Gerald Navratil



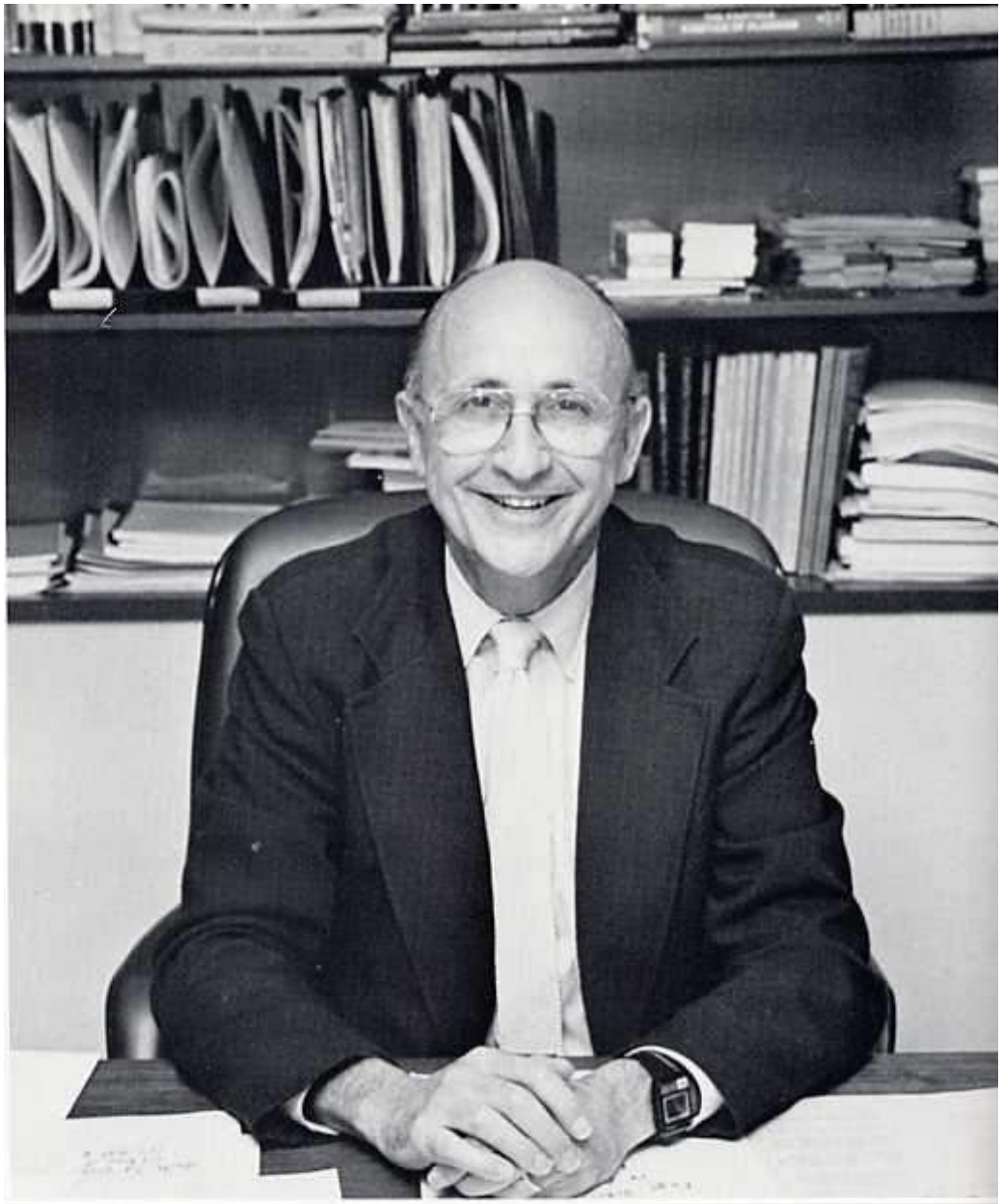
Alireza Sedaghat



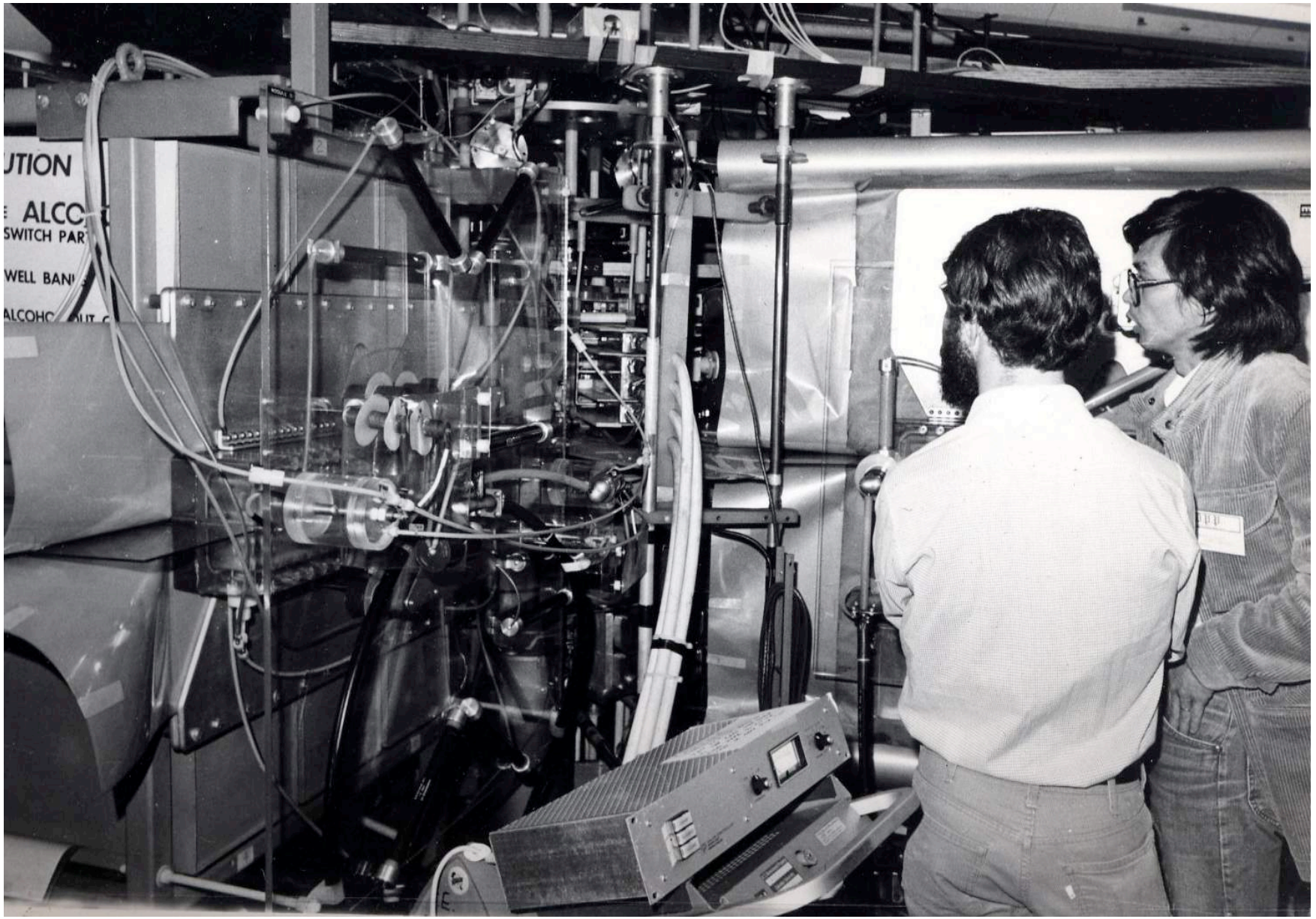
Michael Tabor

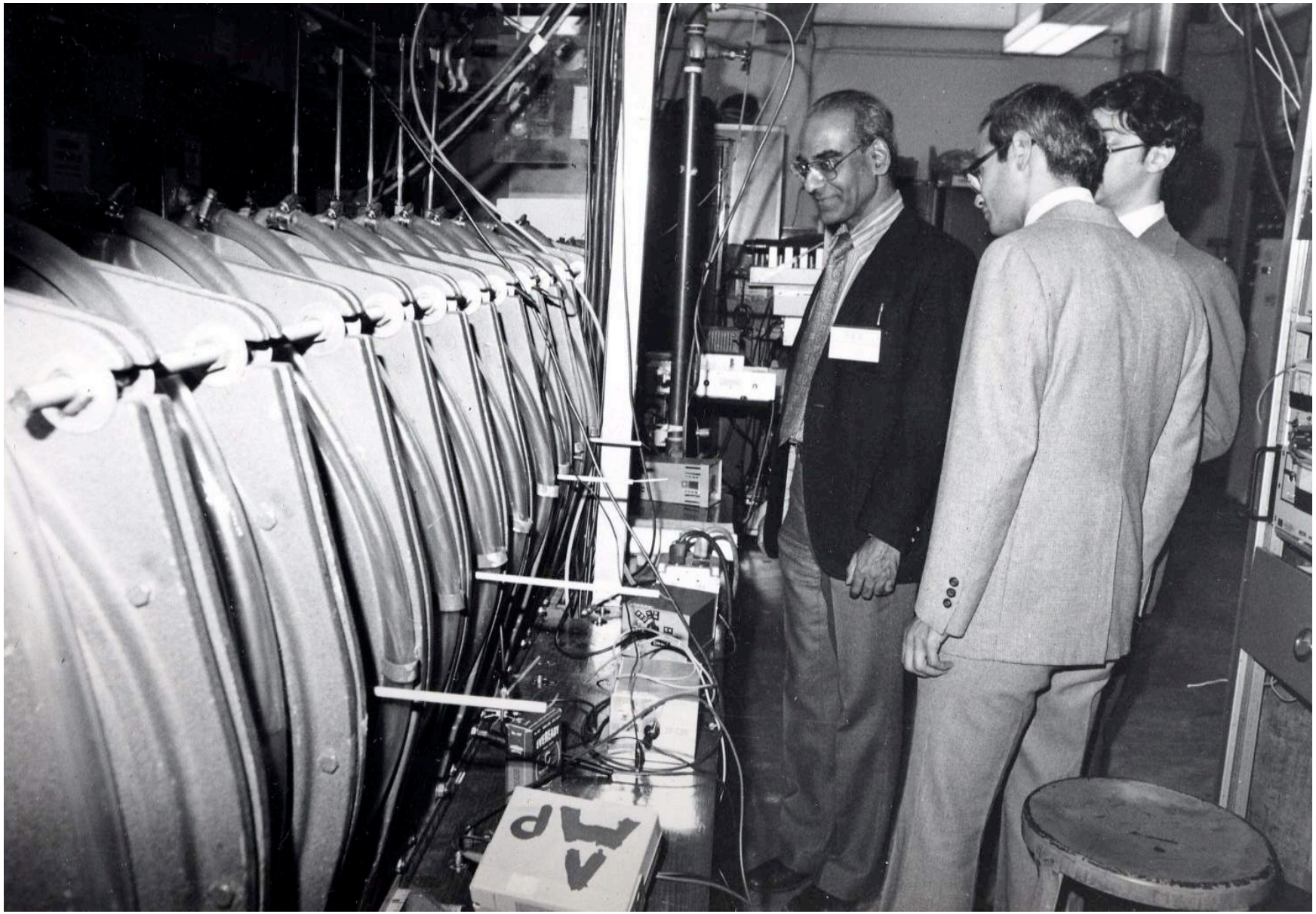
OK - So what's the plan guys?

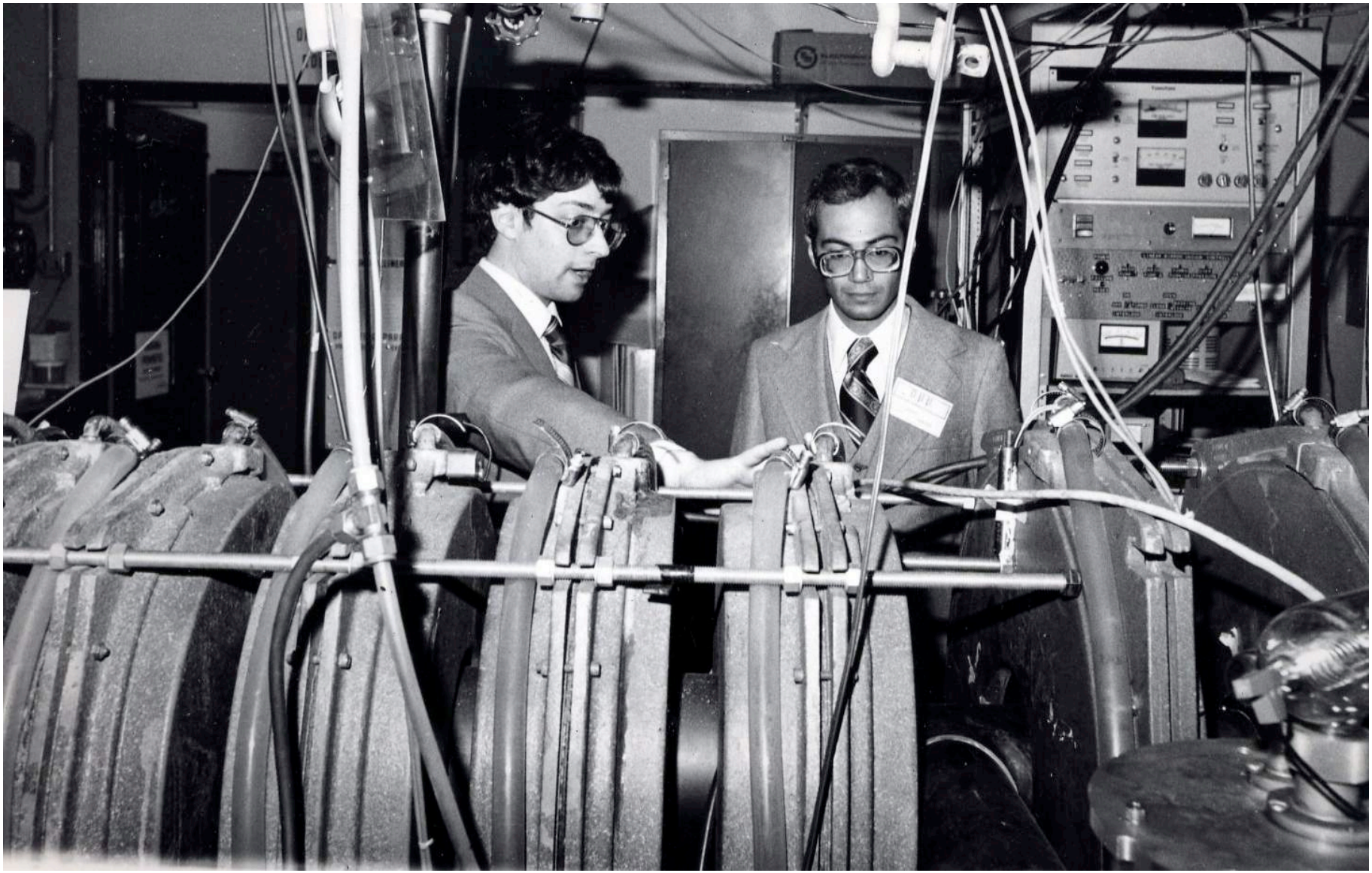
1986

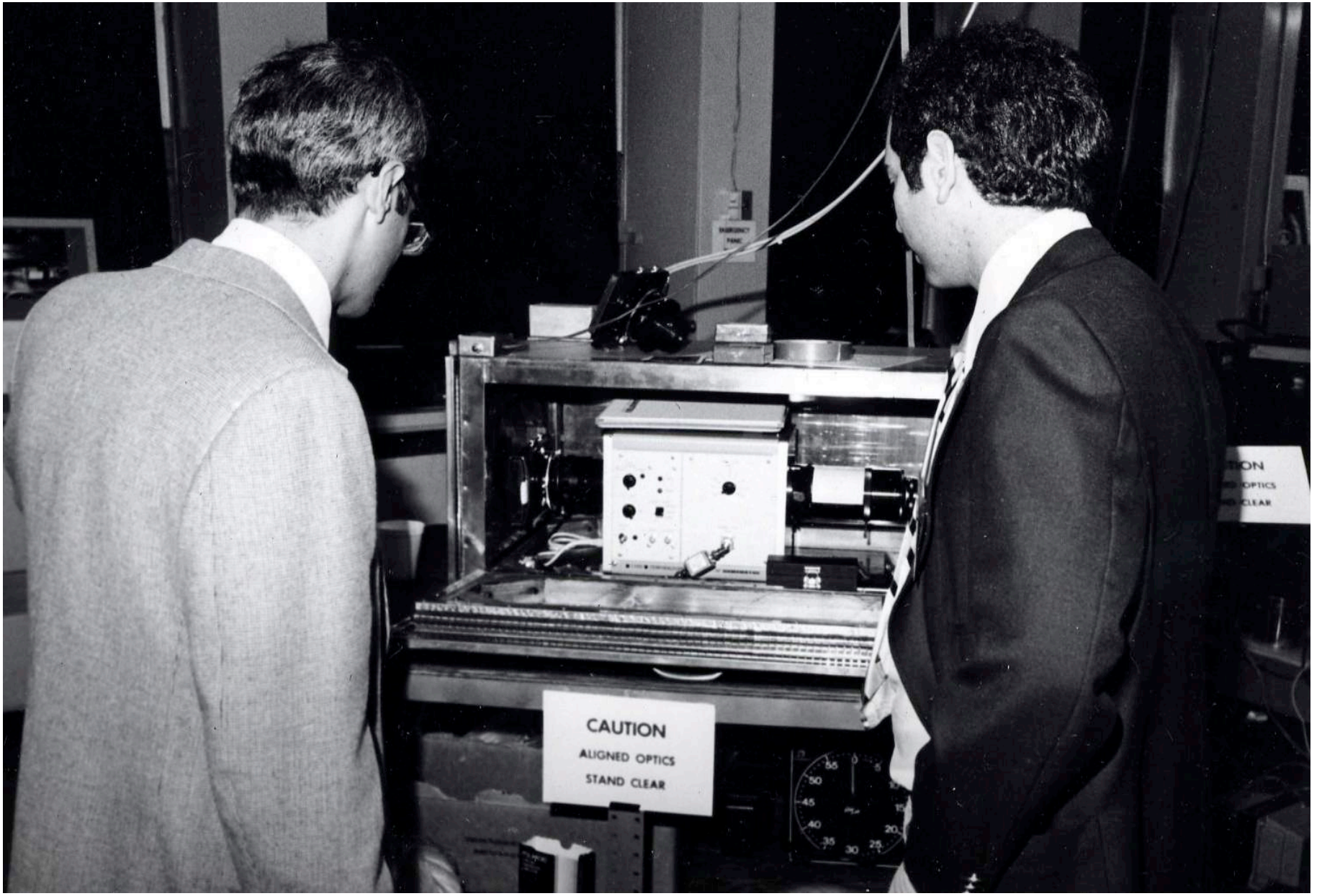


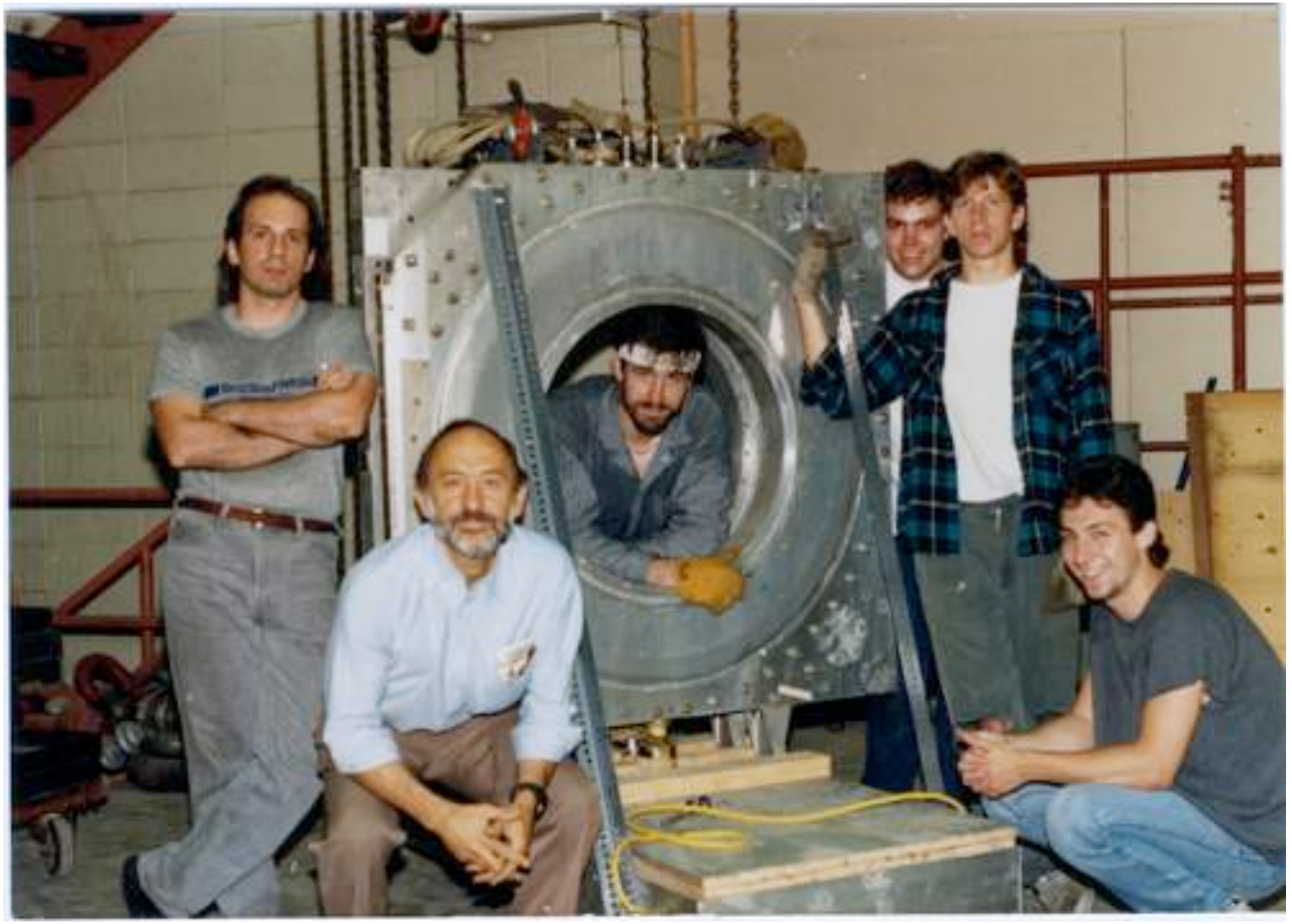
Robert A. Gross: DEAN


UTION
ALCO
SWITCH PAR
WELL BAN

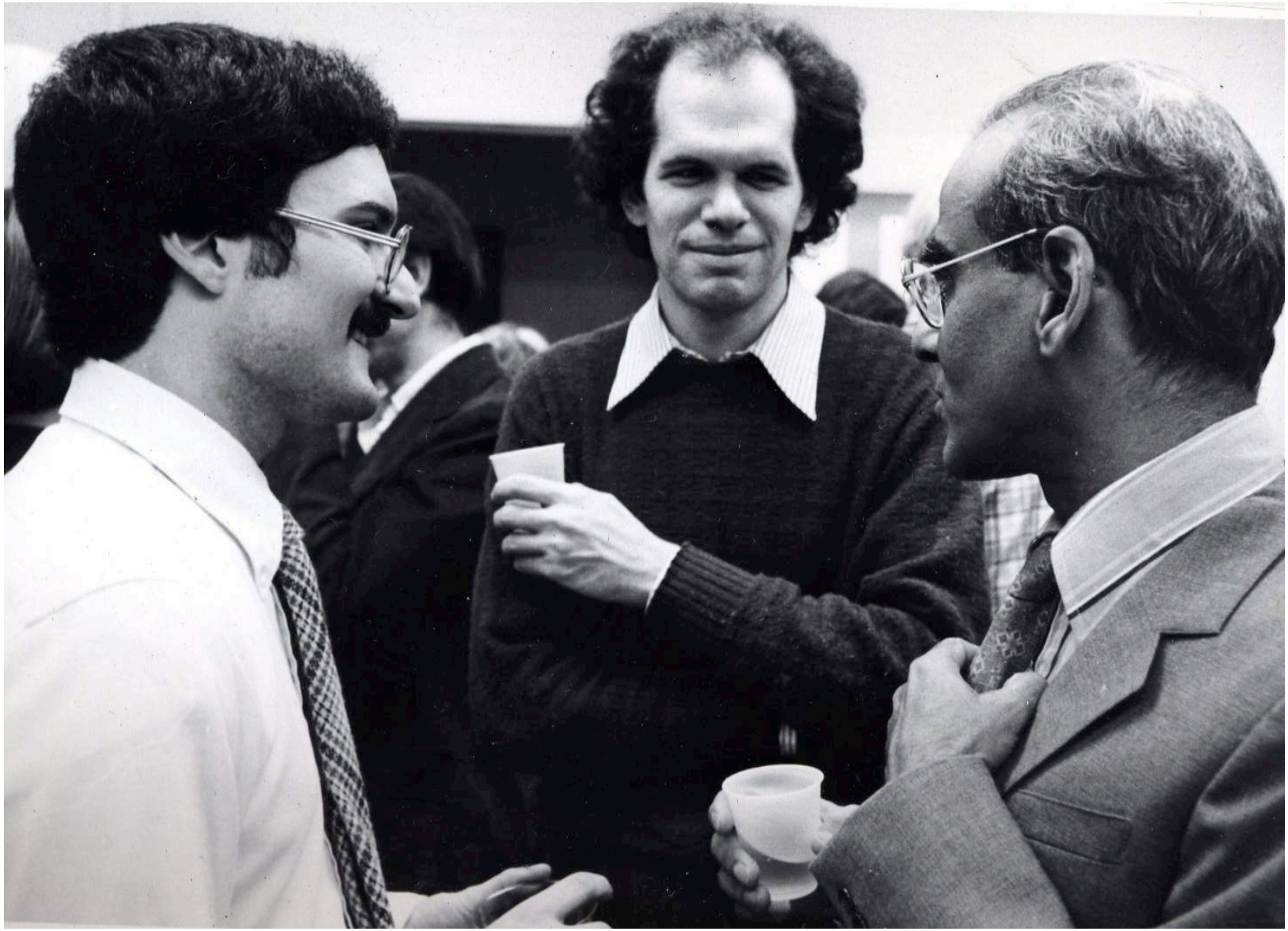




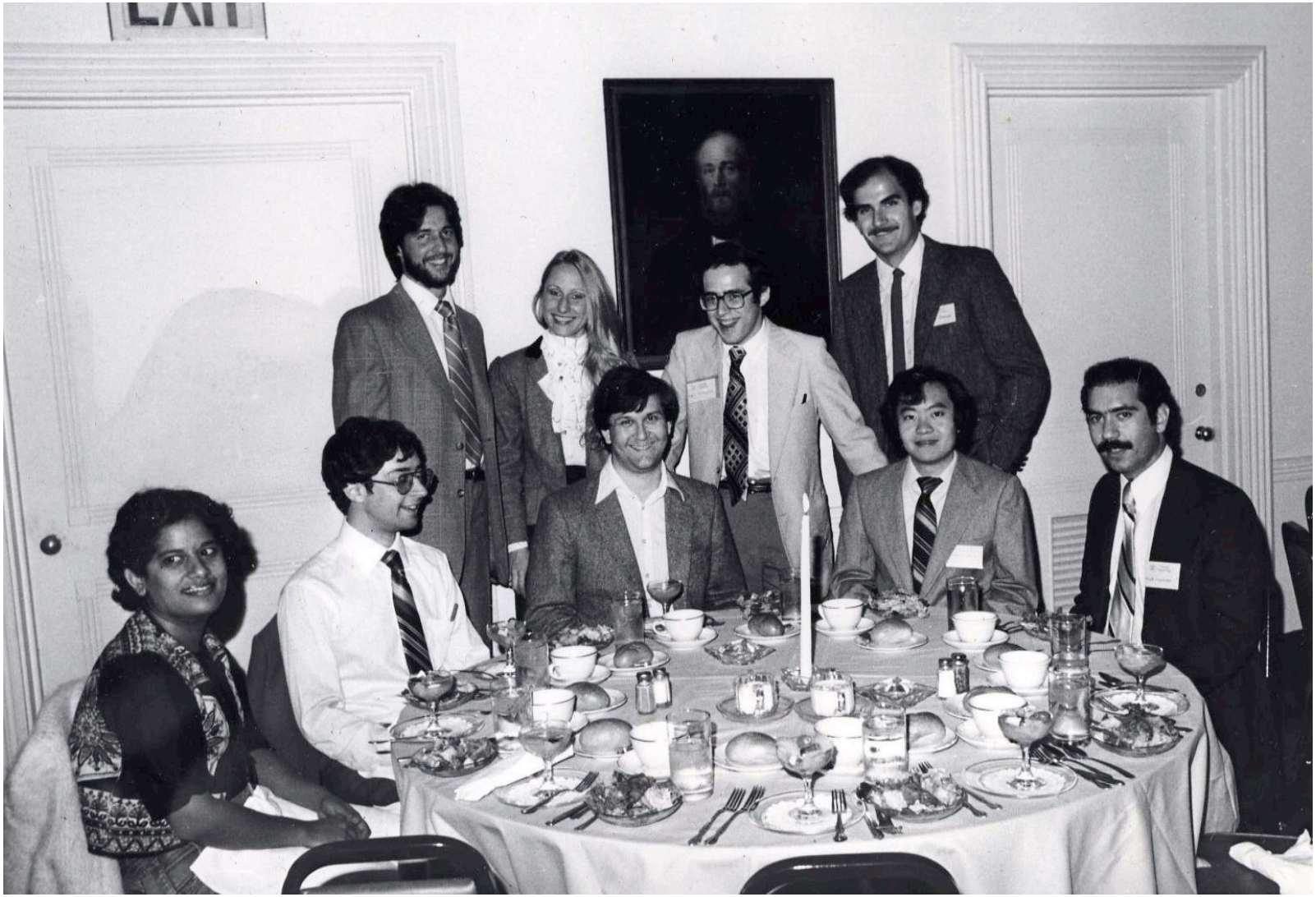

CAUTION
ALIGNED OPTICS
STAND CLEAR




EXIT



1987

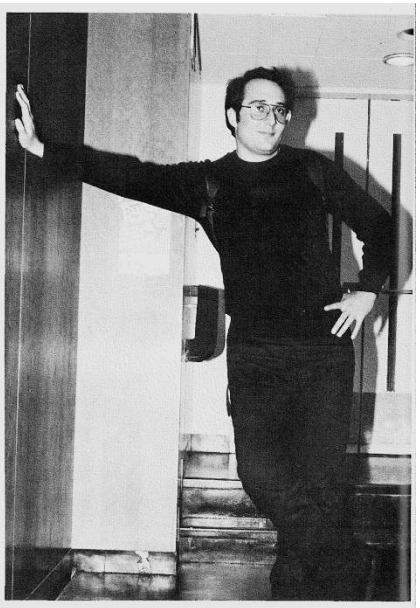



EXIT

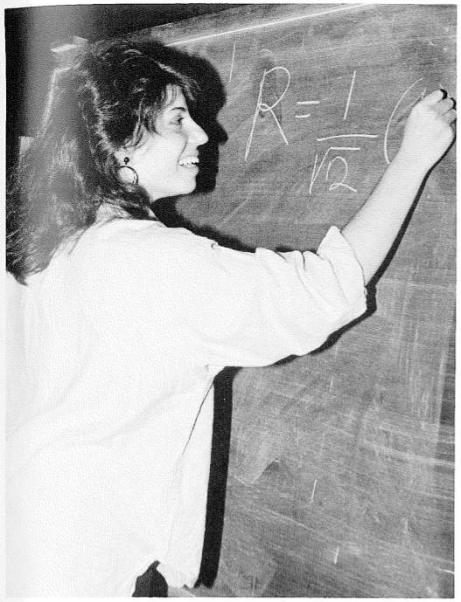
1987

Professor Lidofsky counsels underclassmen in the art of Fortran programming. (top)

(above) **A sign** of the second floor.

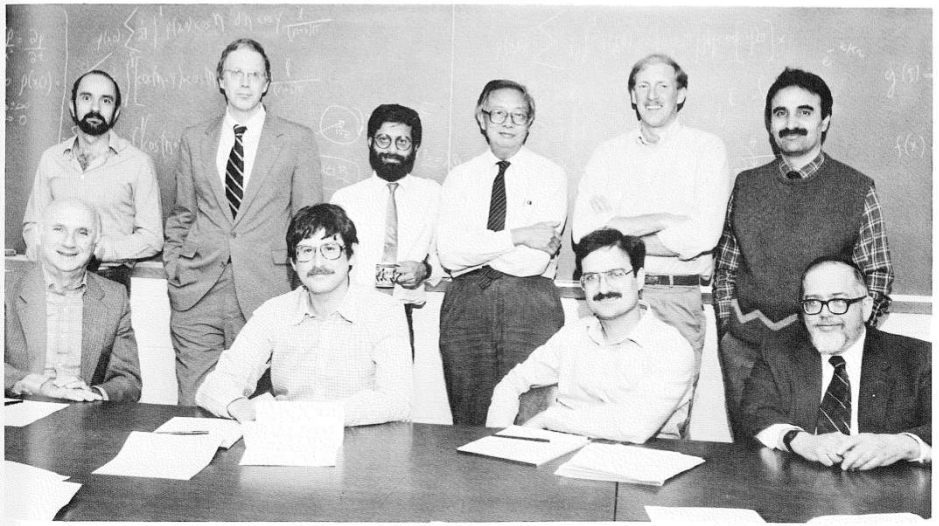


Tom Gellhorn contemplates the acceleration necessary for an electron to penetrate the wall of the Mudd building.



Quantum anyone? (left)

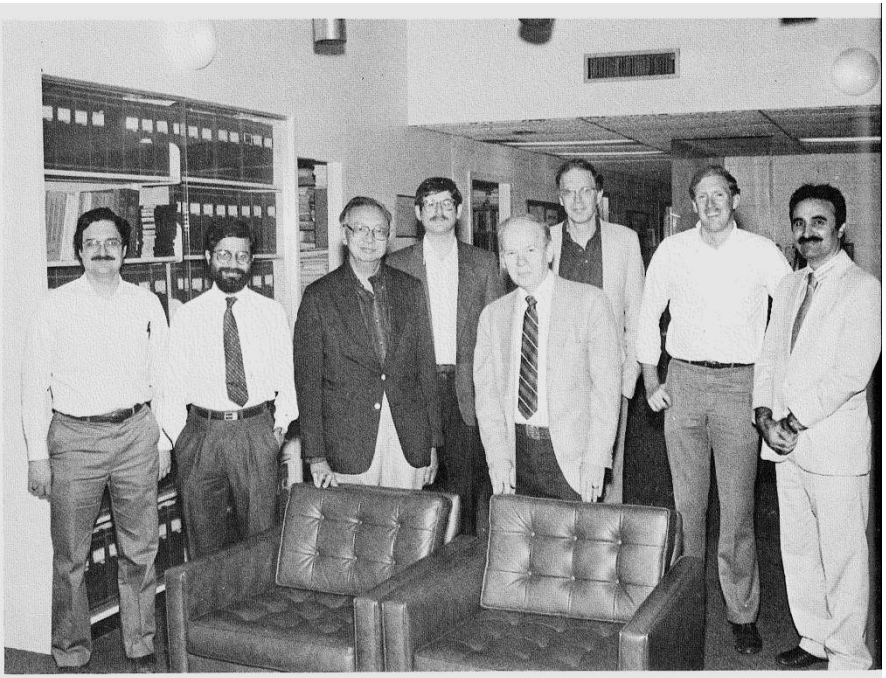
Alfredo Cubina searches the help wanted section for an applied physicist position. It is listed right after gene splicer, Fred.



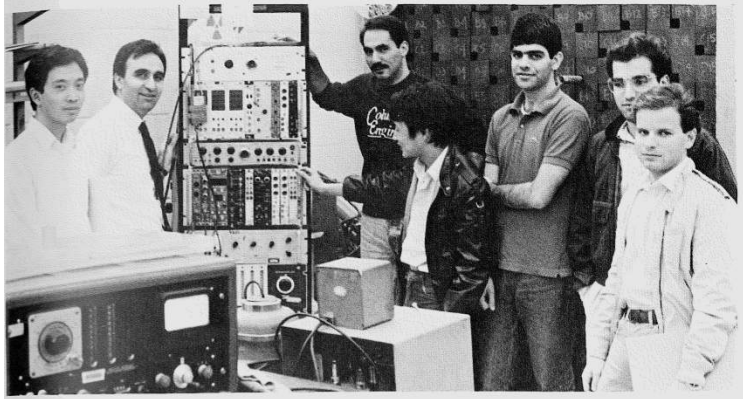
APNE **Department Faculty:** *(standing left to right)* Michael Tabor, Thomas Marshall, Amitava Bhattacharjee, C.K. Chu (CHAIRMAN), Michael Mauel, Alireza Sedaghat, *(seated left to right)* S. Perry Schlesinger, Irving Herman, Gerald Navratil, Herbert Goldstein, *(missing)* Leon Lidofsky


EXIT

1988



APNE Department Faculty: *(standing, left to right)* Gerald A. Navratil, Amitava Bhattacharjee, C.K. Chu, Irvng P. Herman, Leon Lidofsky, Thom Marshall, Michael E. Mauel, Alireza Sedaghat; (missing) Herbert Goldstein, Michael Tabor.



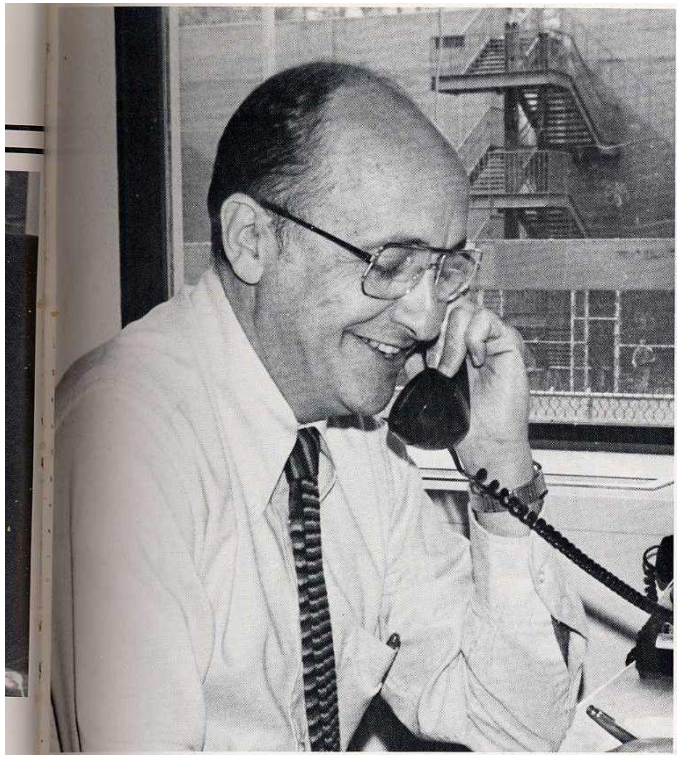
So, does anyone know how to work this gadget?

Department Staff: *(seated, left to right)* Lois Winter, JoAnn Winsten; *(standing, left to right)* Marlene Arbo, Lydia Argote.

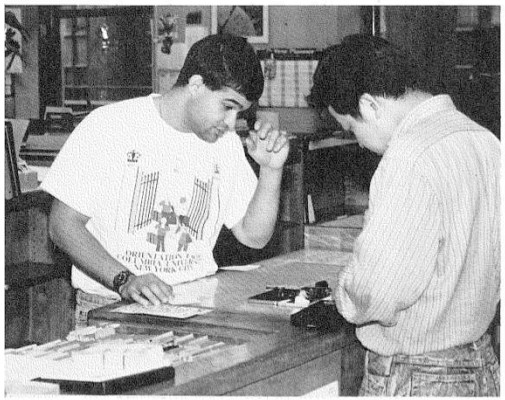
are conducting in the facilities available to the APNE Department. These include a Tokamak, a FEL, a fission reactor, extensive computer systems on campus, as well as the use of the resources at Brookhaven and Nevis Labs.

With one of the best equipped departments in SEAS, and some of the greatest research talents to aid us in our education, we seek not to build or to manufacture, but to understand.

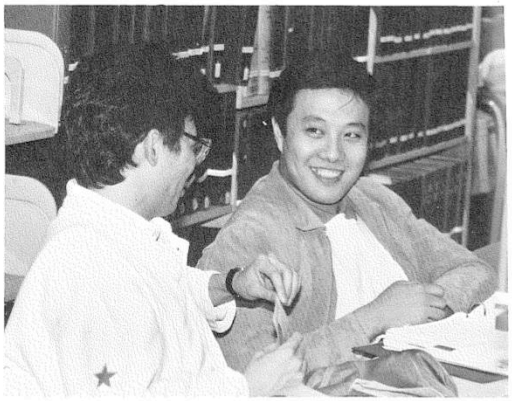
1989



APNE Faculty: (standing left to right) Leon Lidofsky, Gerald A. Navratil (Chairman), C.K. Chu, Amitava Bhattacharjee, Michael Tabor, Peter R. Eiseman (seated left to right) Herbert Goldstein, Thomas C. Marshall, Irving P. Herman, Michael E. Mauel

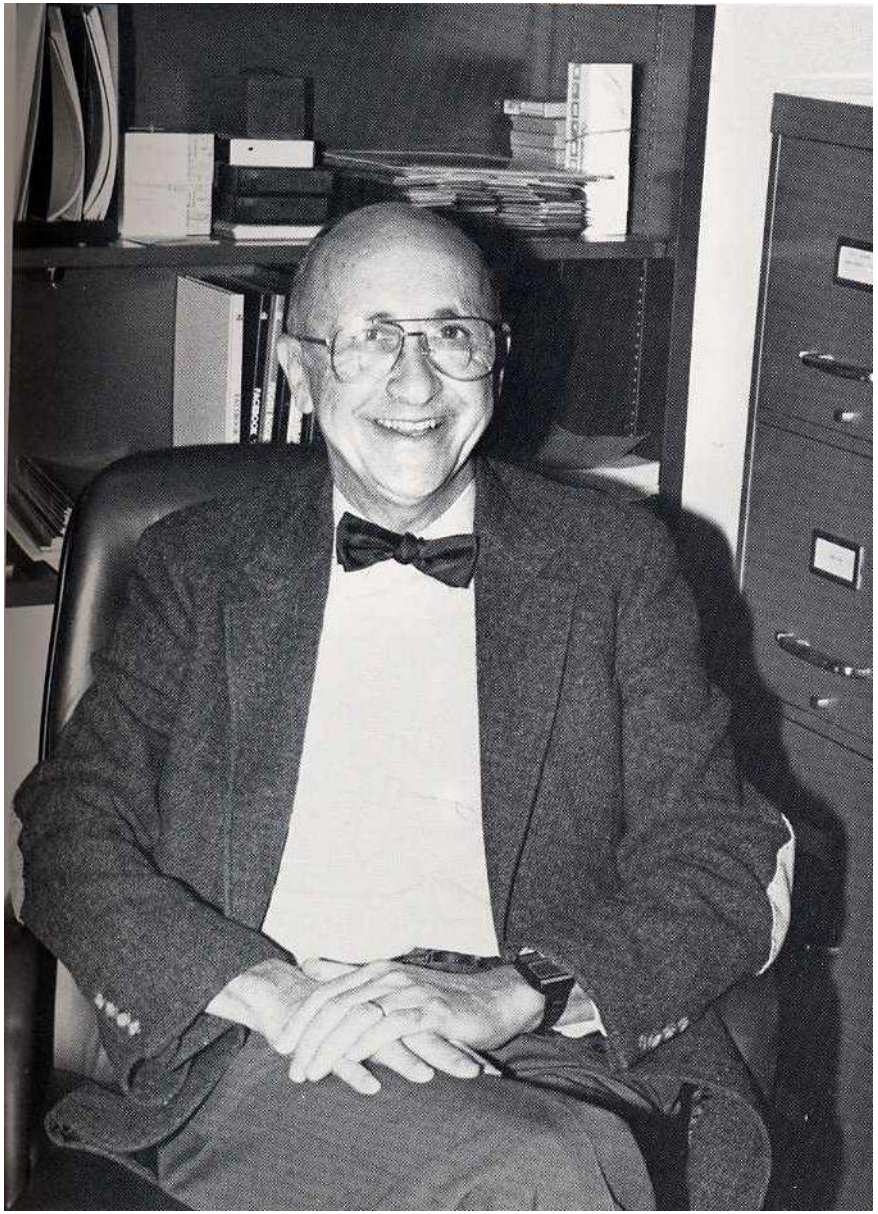


No! No! Not that way. Don't you know how to fill out a card yet?



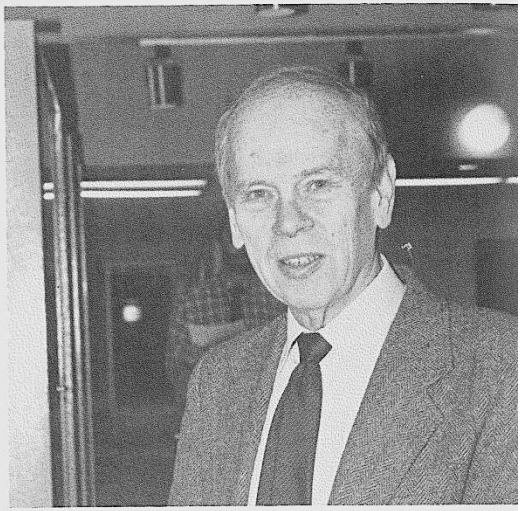
Don't tell me you spent all night studying Physics with her . . .

1989

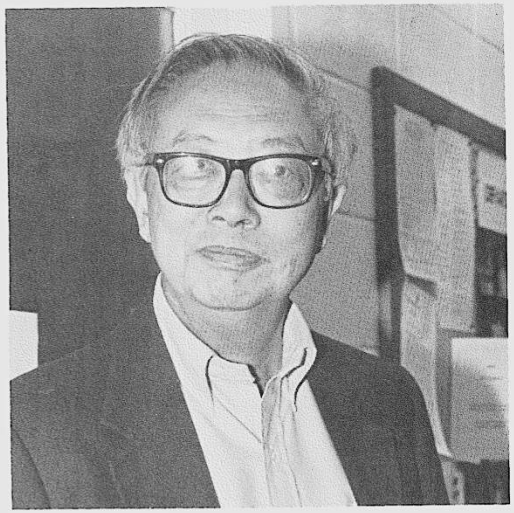


1990

Gerald Navratil

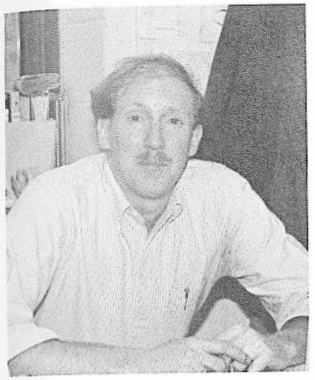


Leon Lidofsky

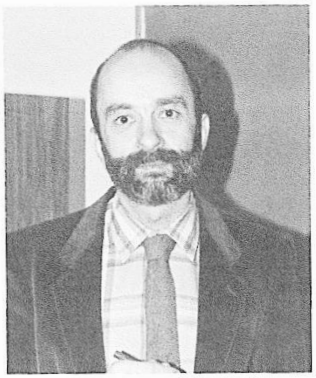


C. K. Chu

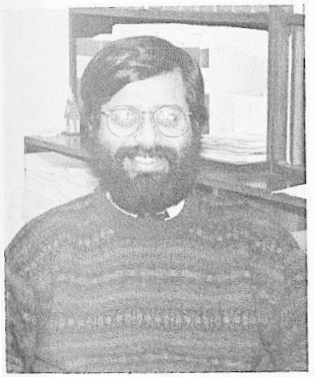
Thomas Marshall



Michael Mauel



Michael Tabor

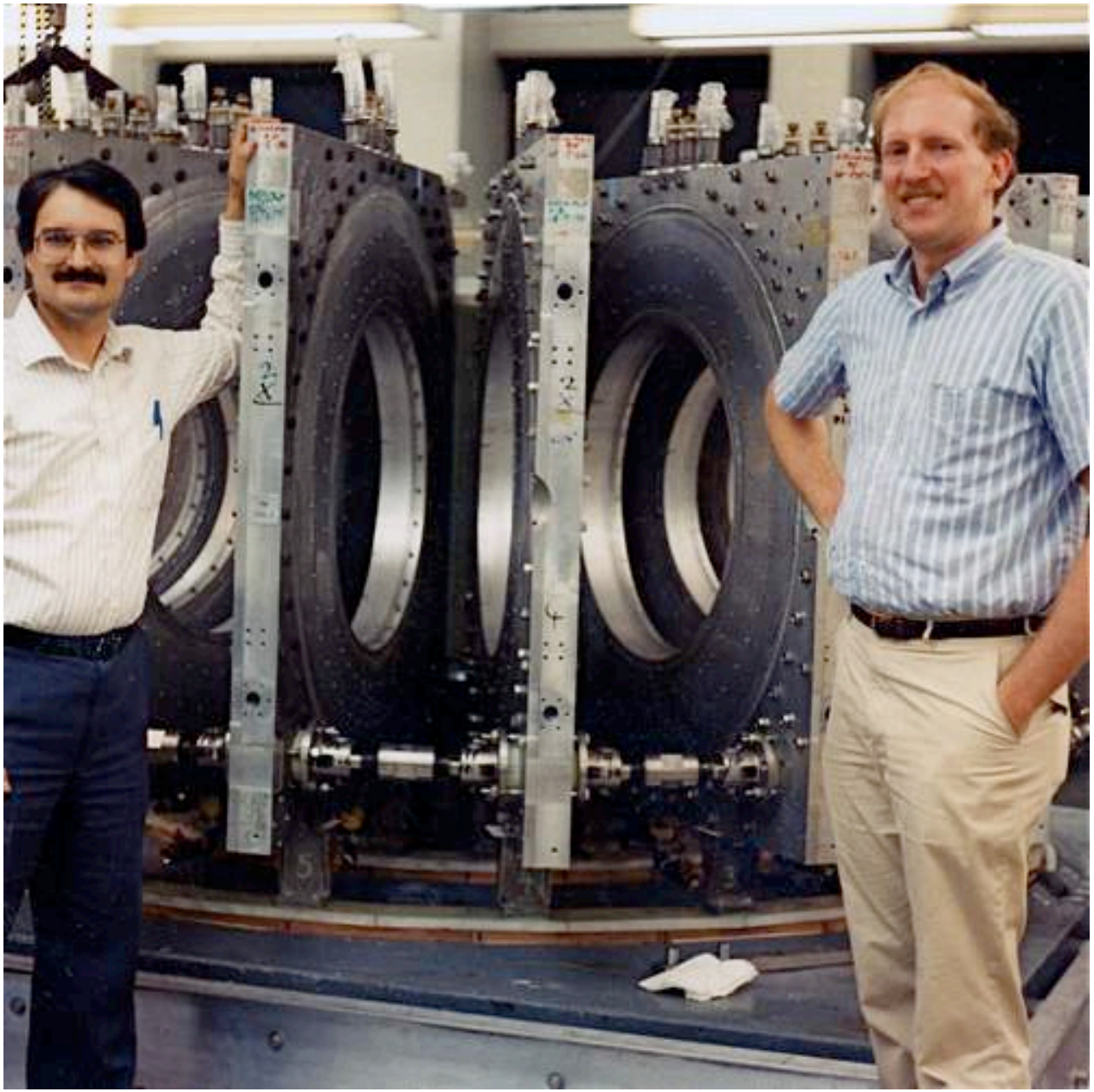


Amitava Bhattacharjee

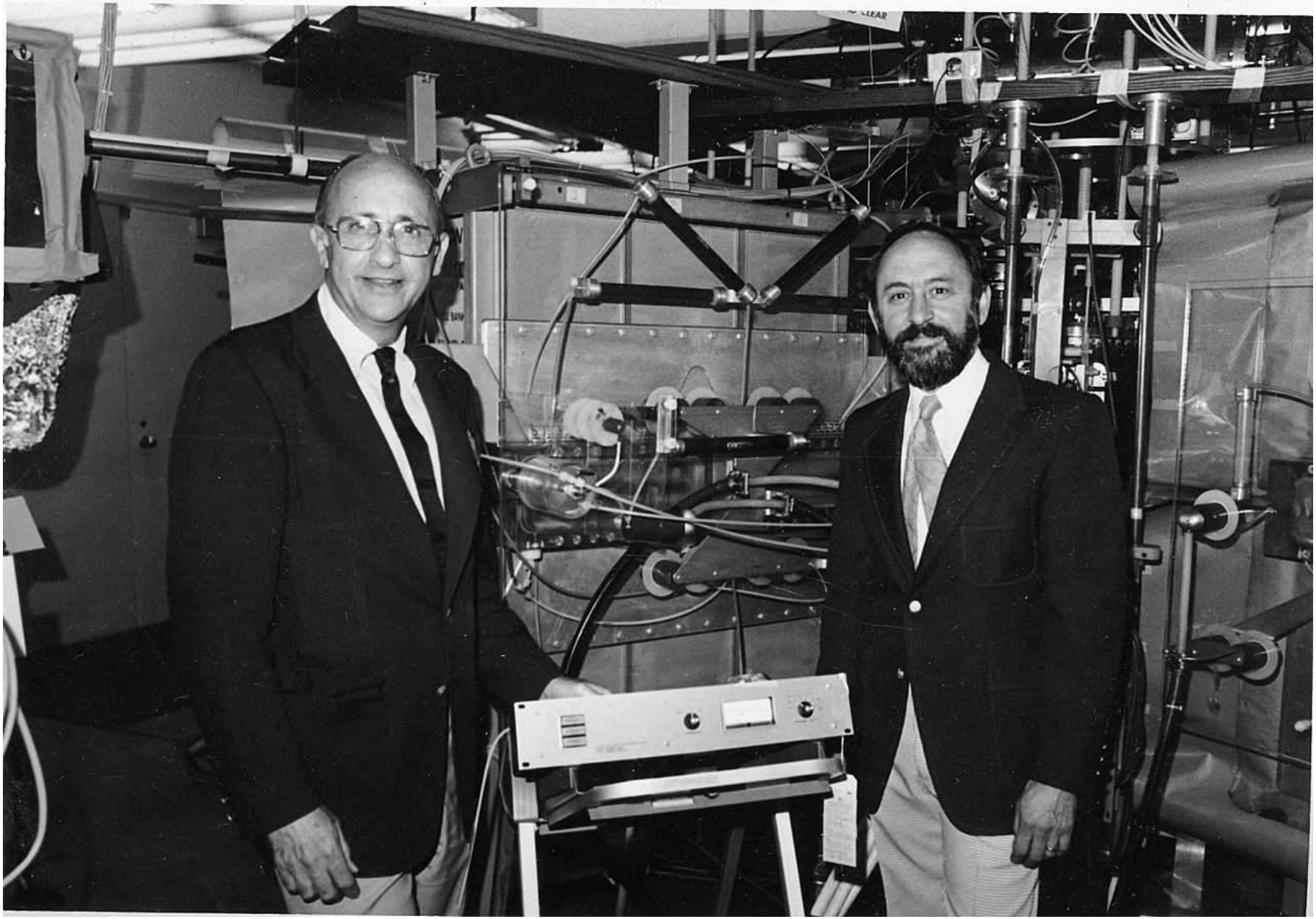
Marlene Abo

JoAnne Winstein, Lois Winter

1990

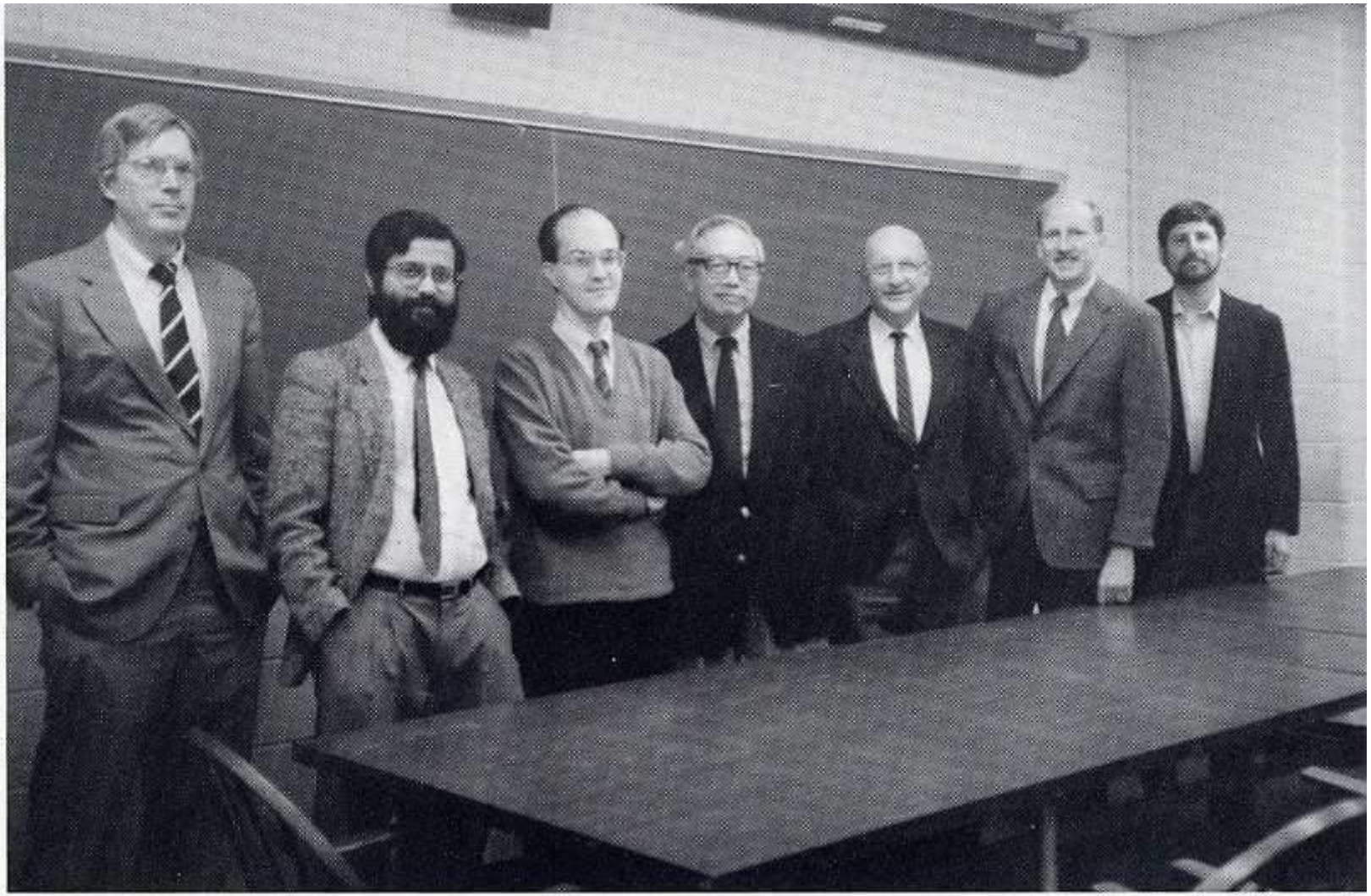


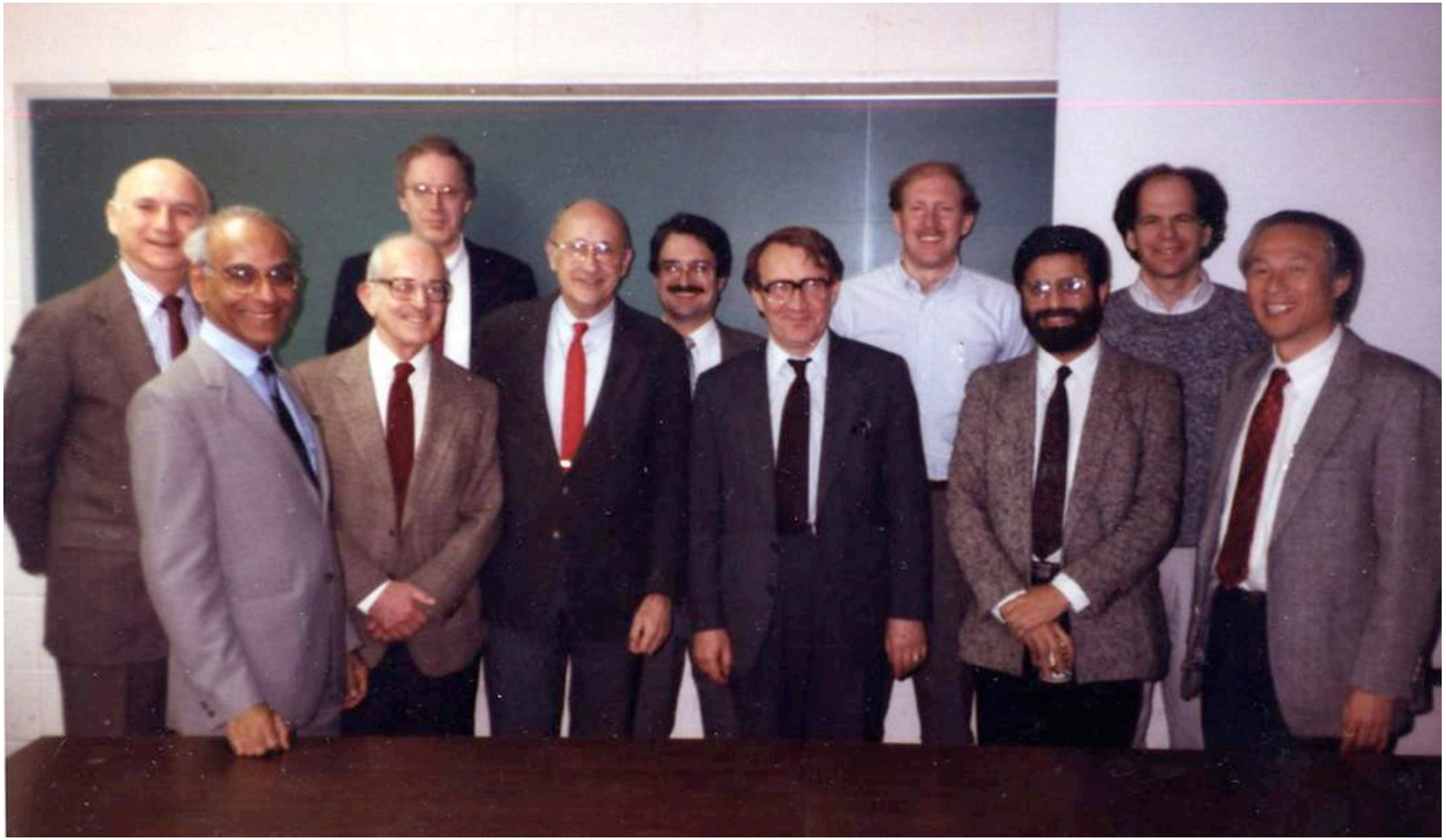
1991-1933

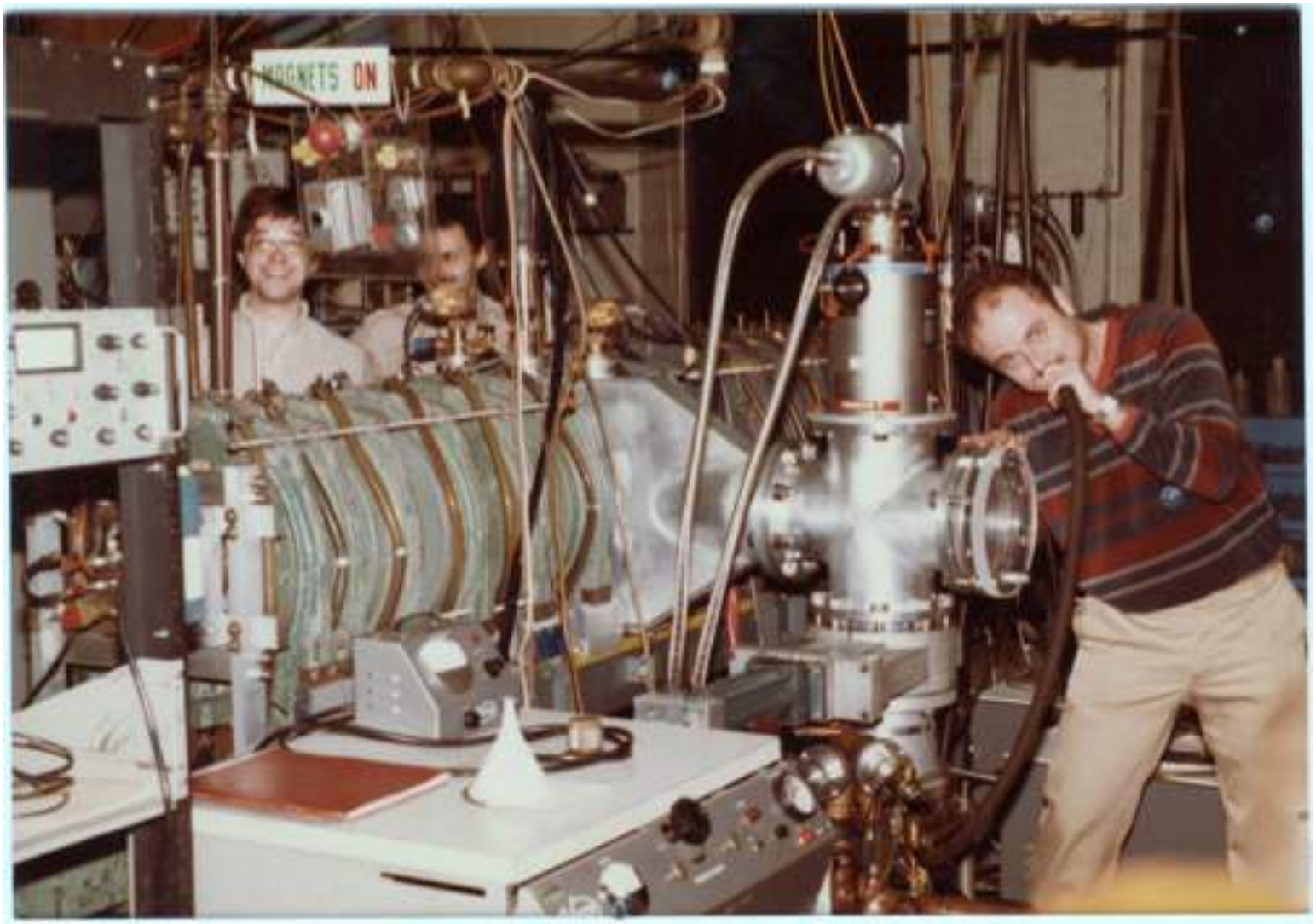


1991

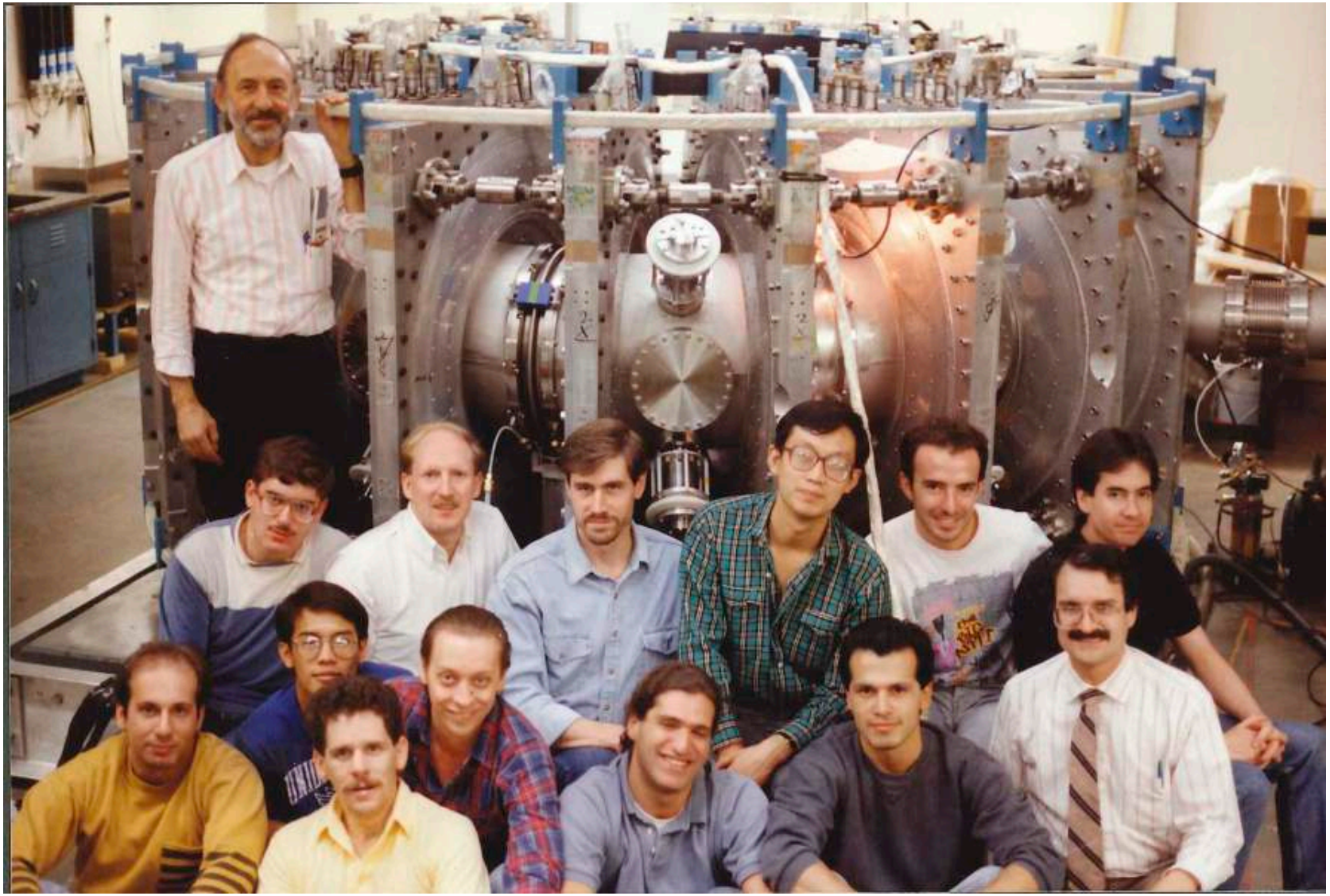
1993

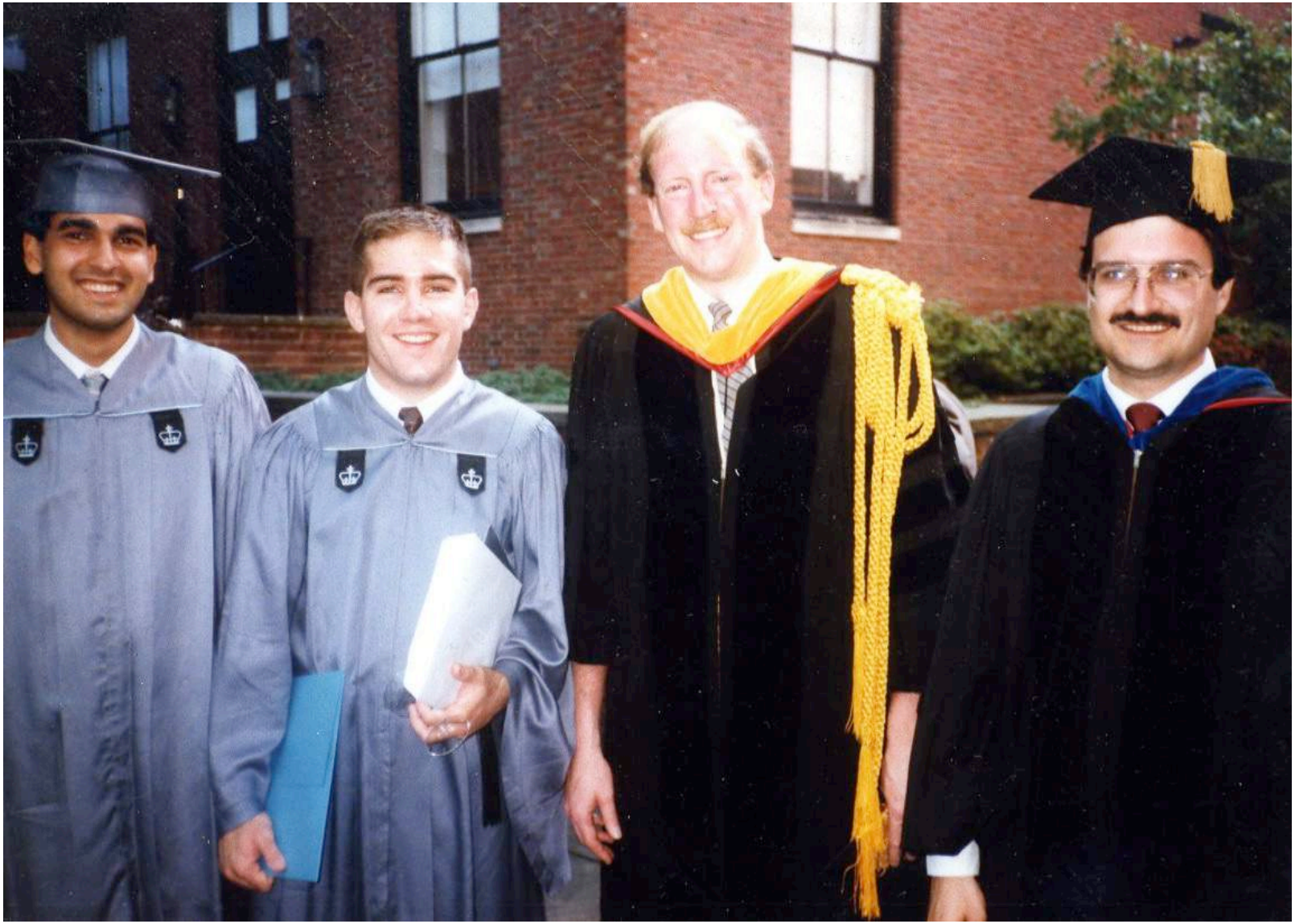




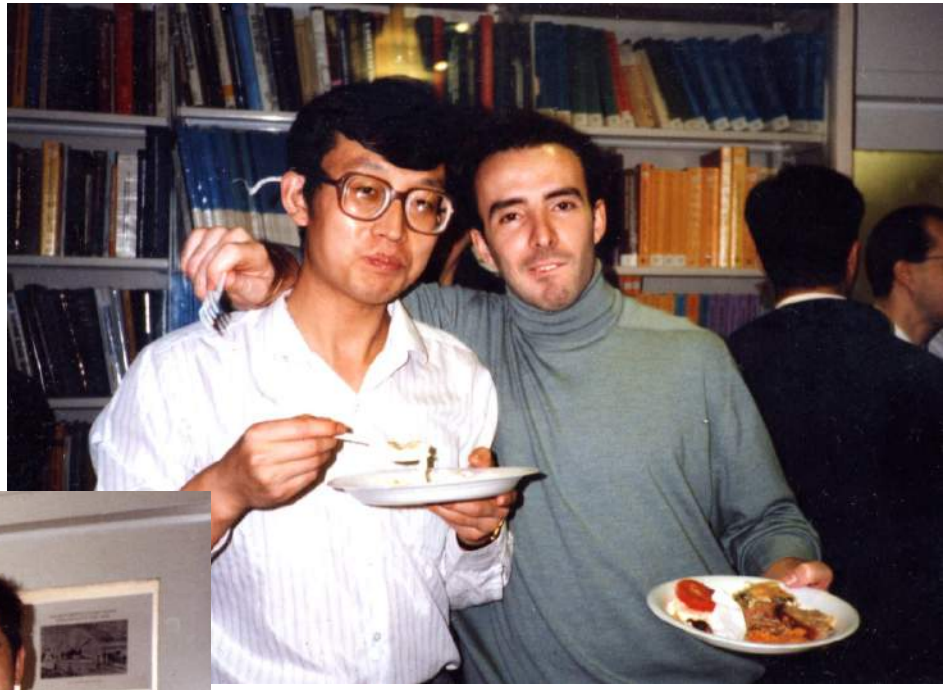

MAGNETS ON

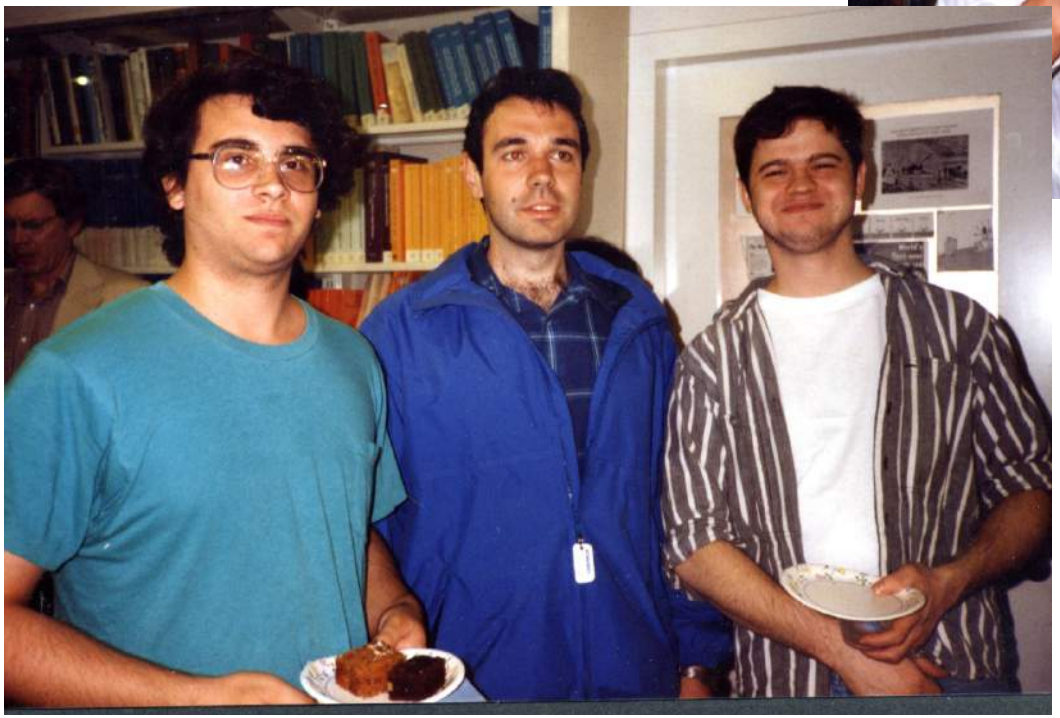
1991-1993



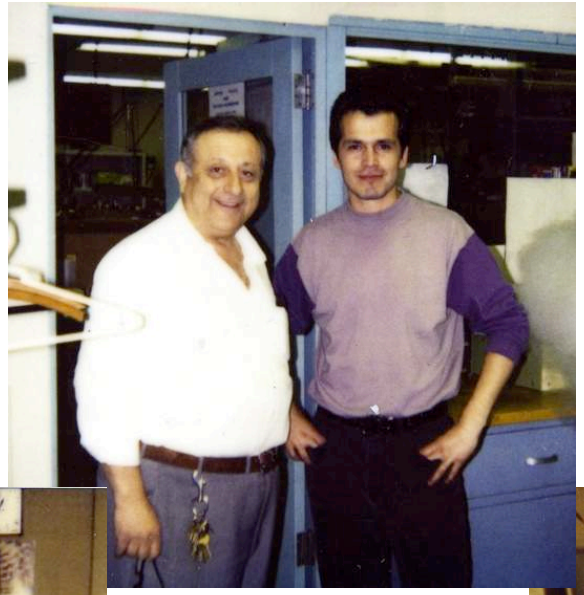


1991-1993

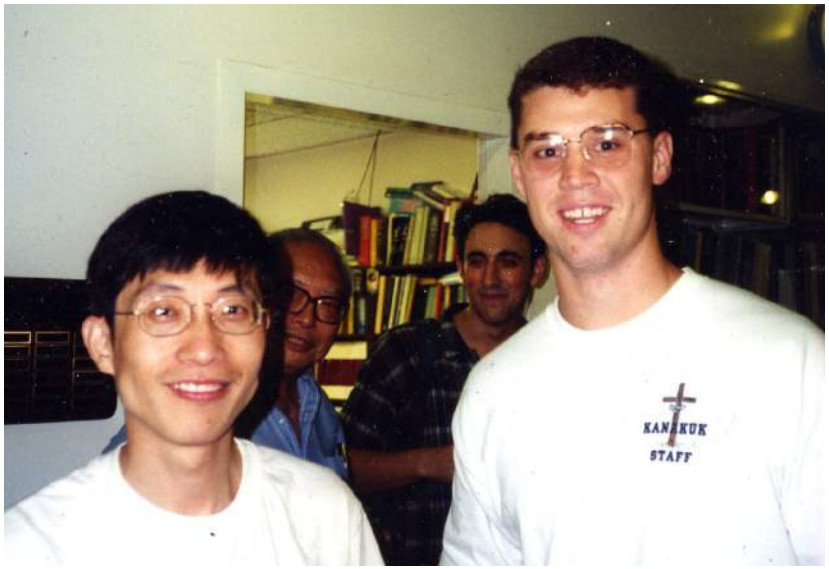


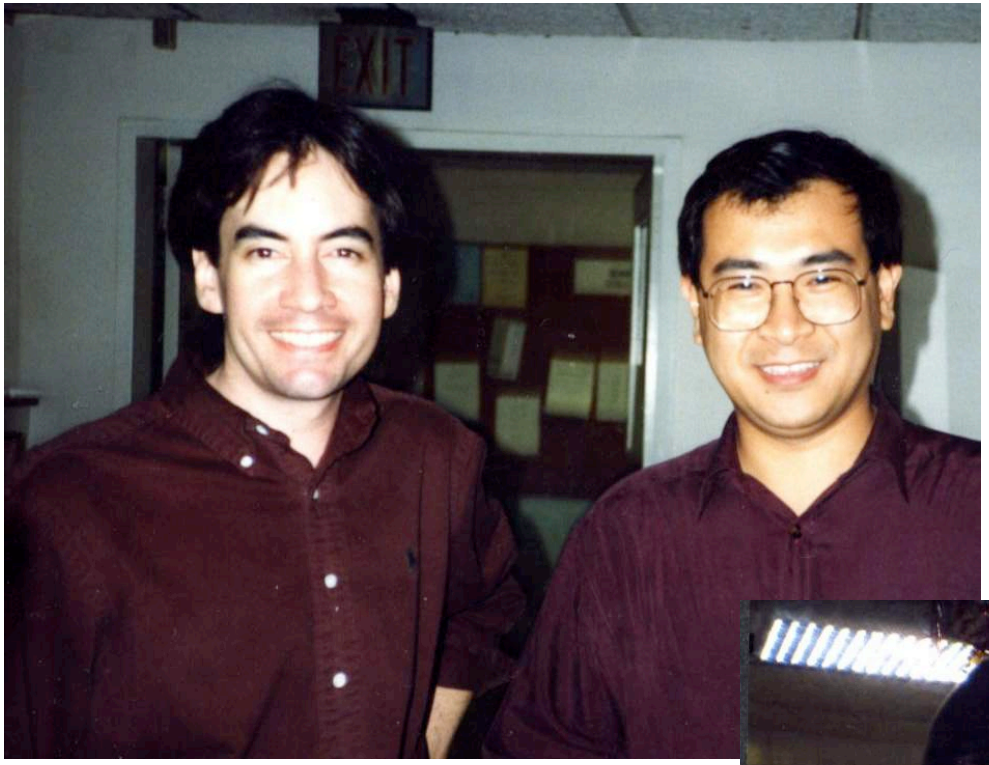


1991-1993




Q27
11 18'98


KANEKUK
STAFF



1991-1993

MACWORLD

April 1989

The Macintosh® Magazin

make it come true. The
ny's HyperAnimator lets
nt or scan in faces and
pe whatever you want
say; the text is automat-
onverted to speech syn-
ed with the lip move-
Mom's voice won't
like hers, however, un-
can get her to digitize
ive you the disk. If you
type in her words, she'll
distinctly computerish. If
n't have time to draw or
es, you can use the sta-
ine characters provided
htStar.
erAnimator's best ad-
nan, however, is proba-
ert, a talking head star-
Disney's new version of
bsent-Minded Professor,"
Sunday nights as part
World of Disney" TV se-
ftware developers Jay
n and Harry Anderson
Albert to play the pro-
electronic sidekick.
htStar has also added the
nimator's audio feature
-mail package called
Mail, which lets your ani-
coworkers deliver their
es in persona.
erAnimator lists for
. For further informa-
ntact BrightStar Tech-
in Bellevue, Washing-
206/885-5446.
Garrison

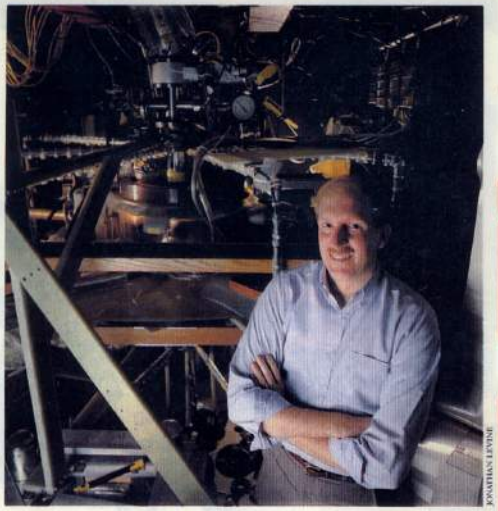
looks like rings of lightning and lasts for 200 millionths of a second each time it appears. During every flash of the lightning ring, laser beams and magnetic sensors measure the dynamics of the ring at least once every millionth of a second, producing more than a megabyte of data.

The data is digitized, loaded into VAX computers, transferred to Macs, and then analyzed with TokaMack, an application Mauel wrote using Apple's Macintosh Programmer's Workshop (MPW) and MacApp. The analysis also involves four Cray computers.

tohydrodynamic instabilities, called kinks, occurring in the plasma ring at very high pressure.

TokaMack is named after Tokamak, an earlier device developed by the late Russian physicist L. A. Artsimovich for magnetically confining ring lightning. Mauel offers the software as freeware to scientists doing similar research throughout the world. TokaMack requires a Mac II.

For further information, contact Michael Mauel at Columbia University, at 212/854-4455.
–Ann Garrison



JONATHAN LEVINE

Columbia professor Michael Mauel leads a team using Macs to test the use of magnetic force fields to confine hydrogen plasma.

aMack

The U.S. Department

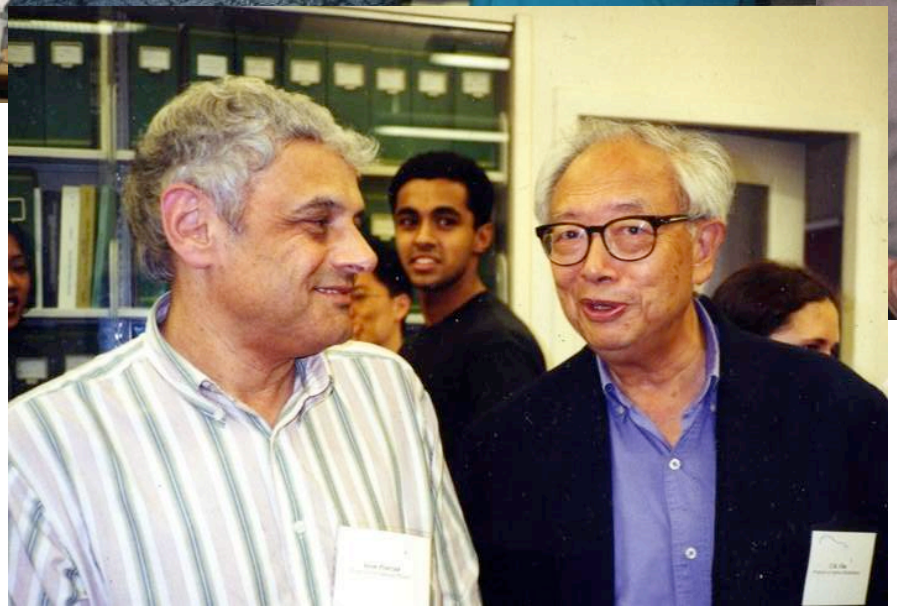
81 Macworld News

- *Beyond HyperCard* Two companies prepare more powerful HyperCard clones.
- *New MacWrite and MacDraw* In addition to new versions of the old standbys, Claris introduces Claris CAD and the SmartForm Series.
- *And Now Presenting...* PowerPoint and More II connect to slide-making services for quick turnaround.
- *E-Mail Support Grows on Vines* A Mac electronic-mail gateway links VINES Network Mail and QuickMail.
- *TokaMack* Columbia University uses a Mac program in fusion research.

Plus, Jasmine's new BackPac with m
dem support, SE/30 color card, medi
cal imaging, C++ and a new MPW,
and more.

1991-1993

1994-1996

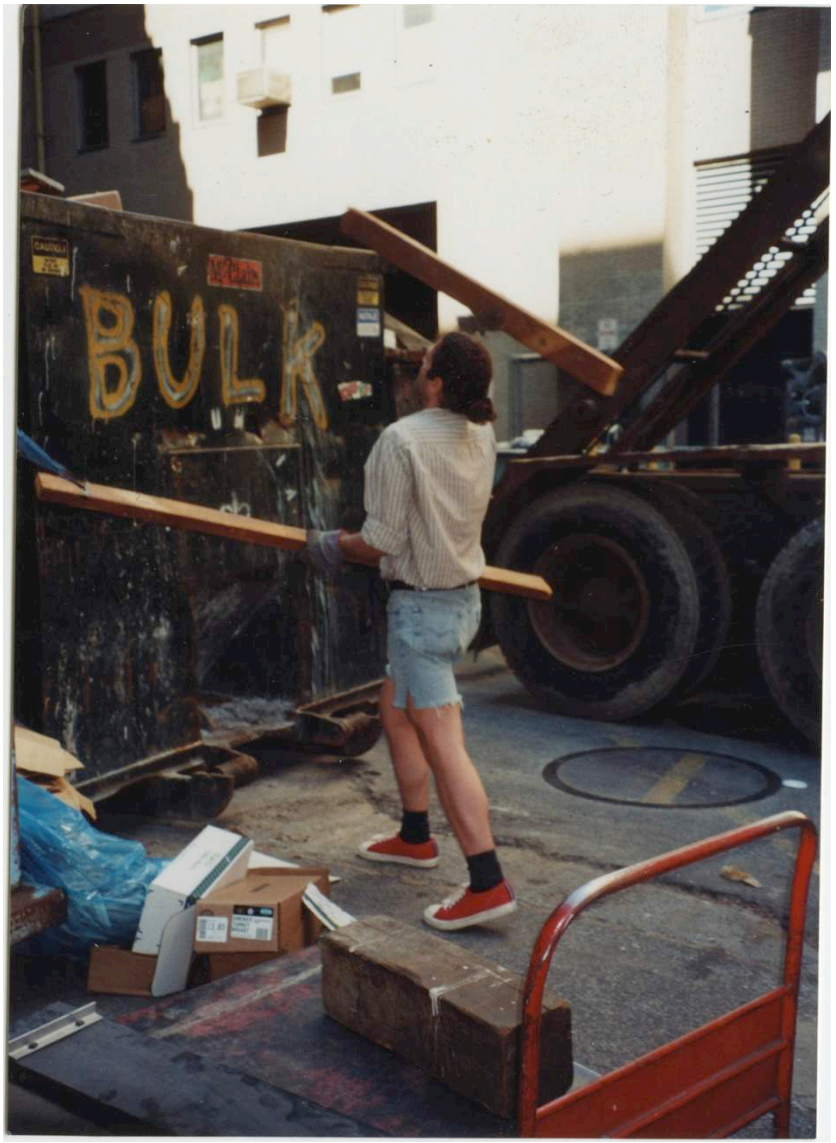


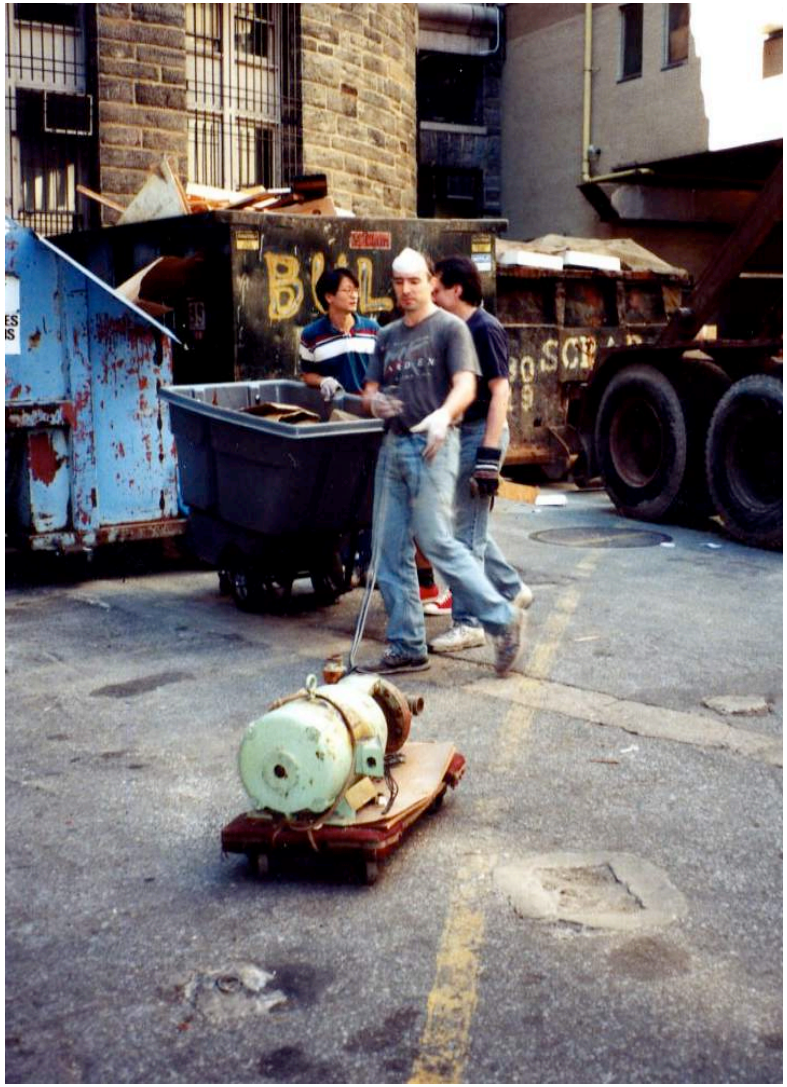
1993-1996

1994-
1997

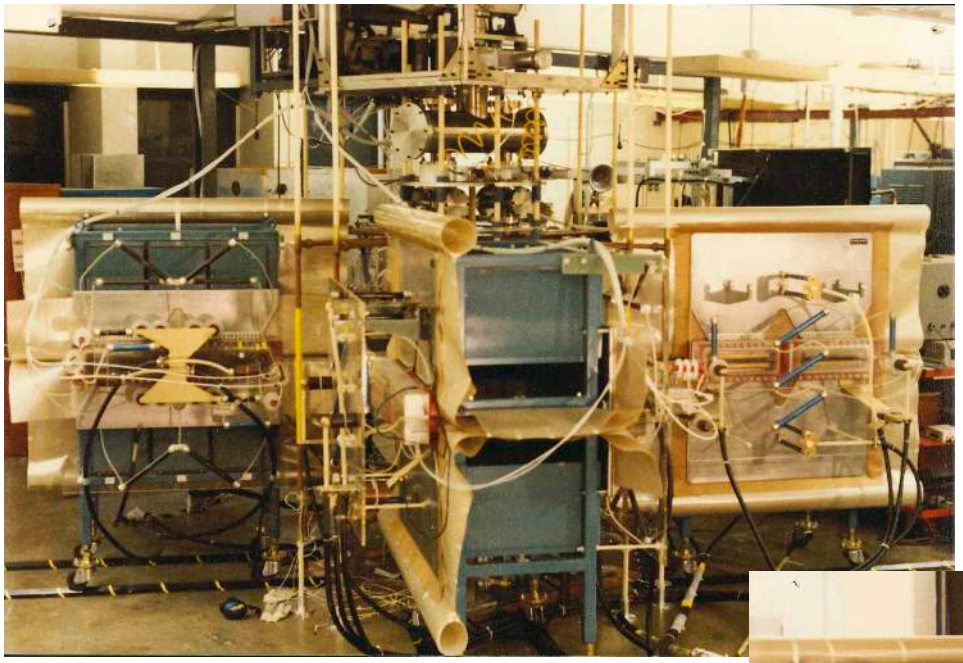

COLUMBIA

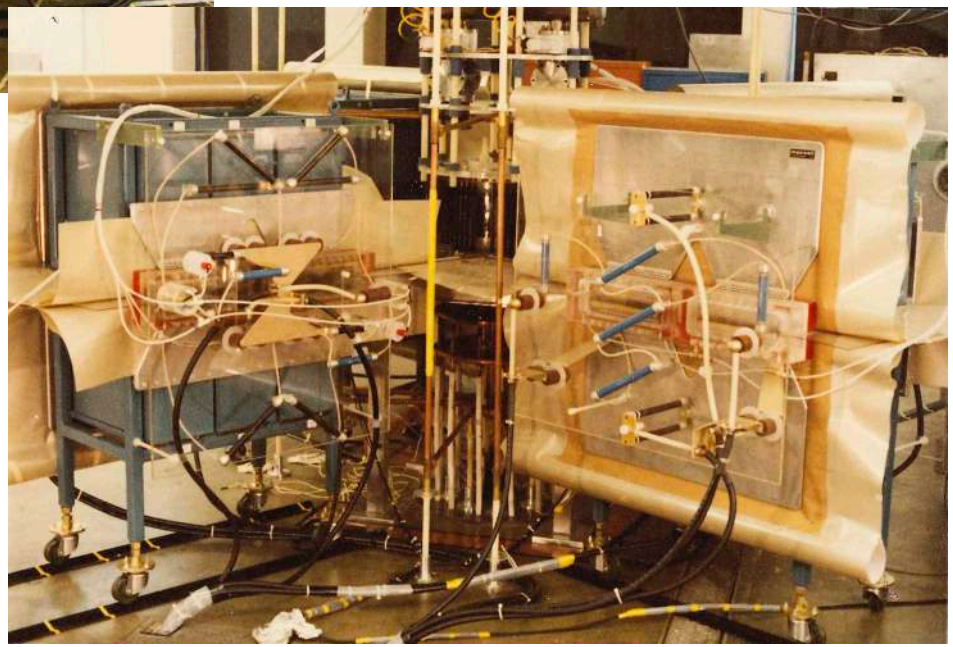
1996-1999

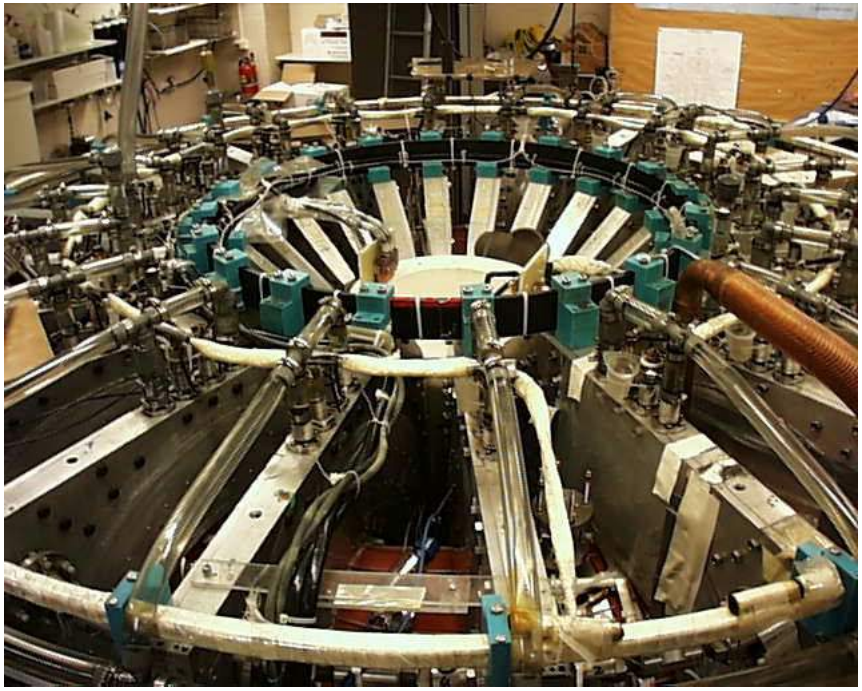

BULK

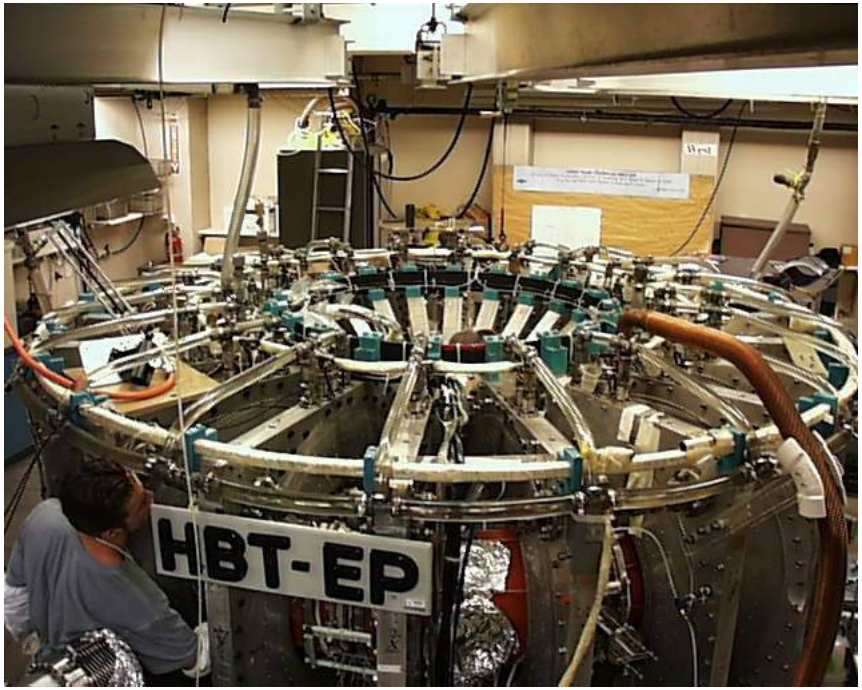


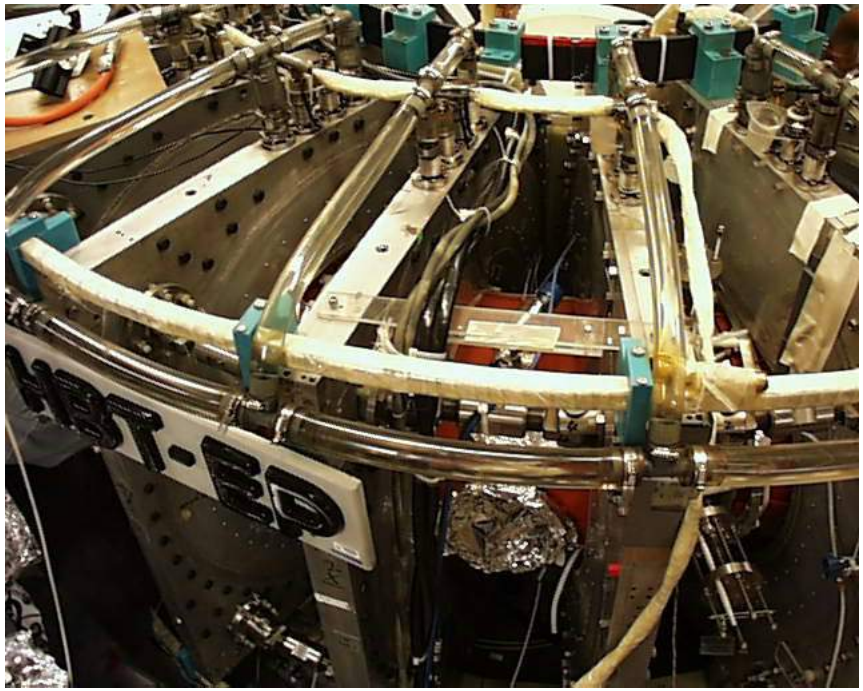

CLARK

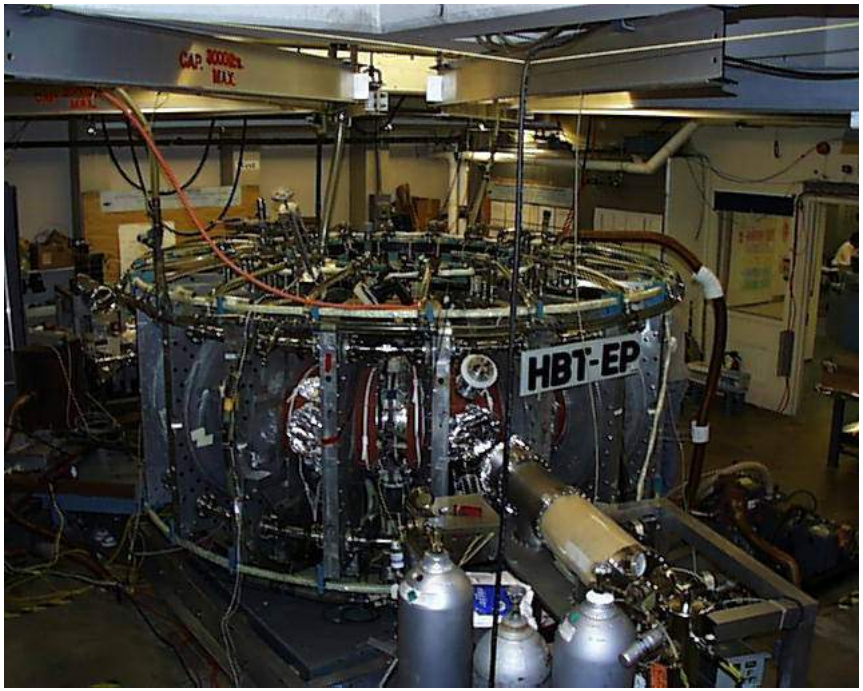




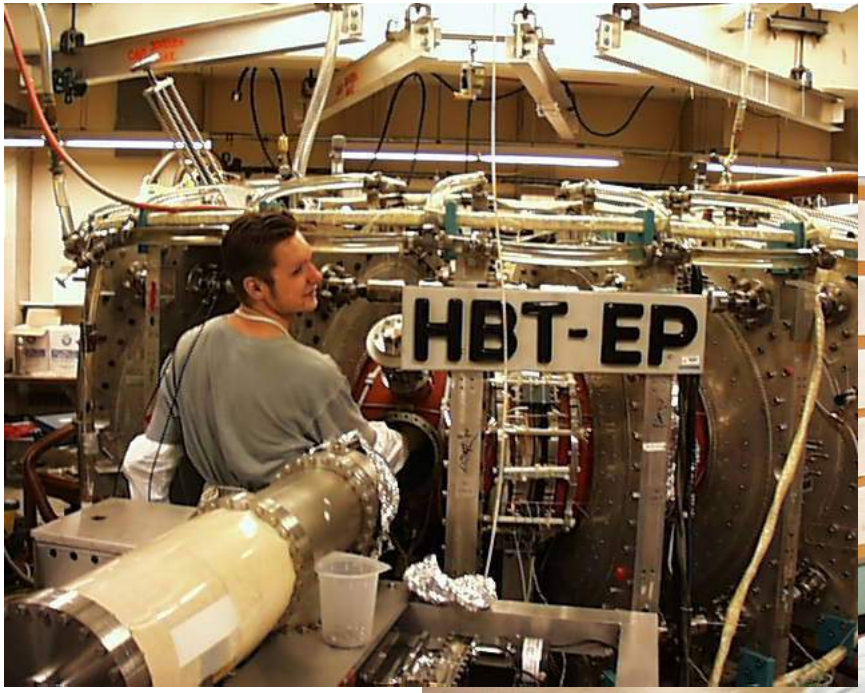



HBT-EP


HBT-EP


HBT-EP


PULL OUT
DOWN
FIRE
ANKET
BLANKET INSPECTION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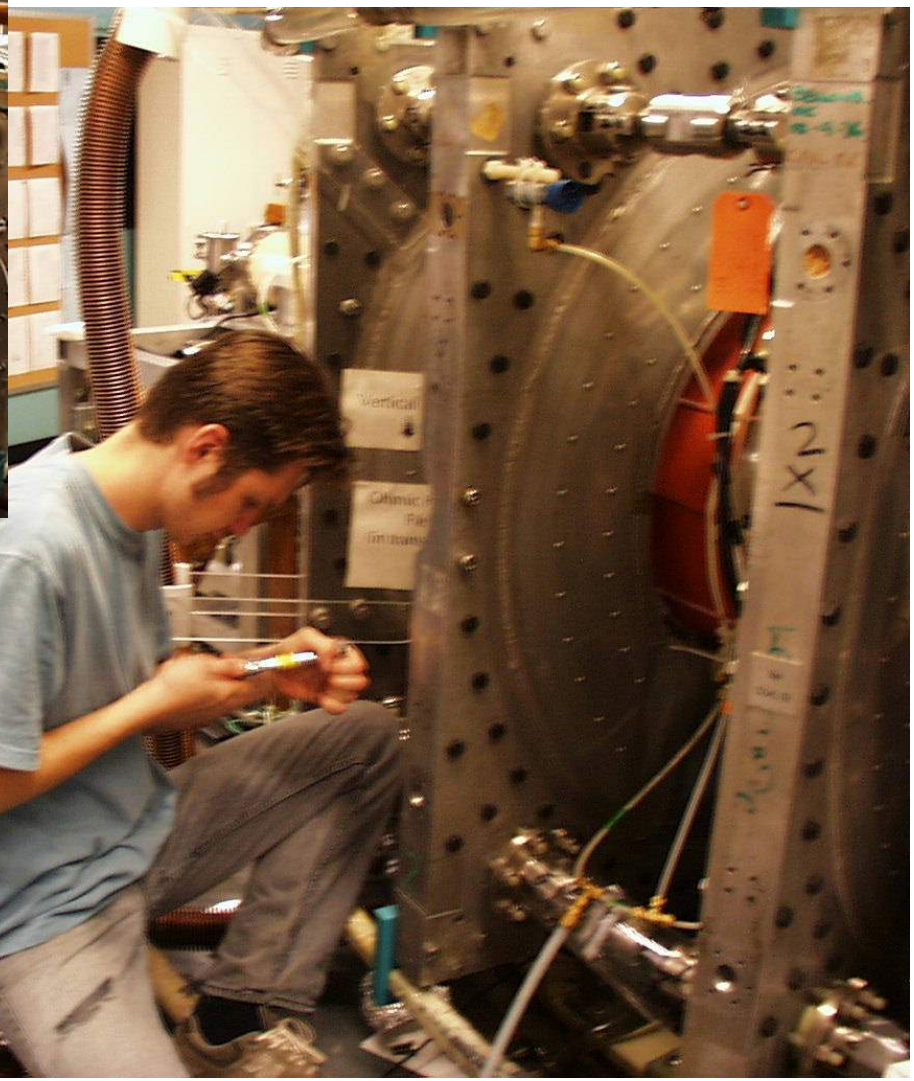
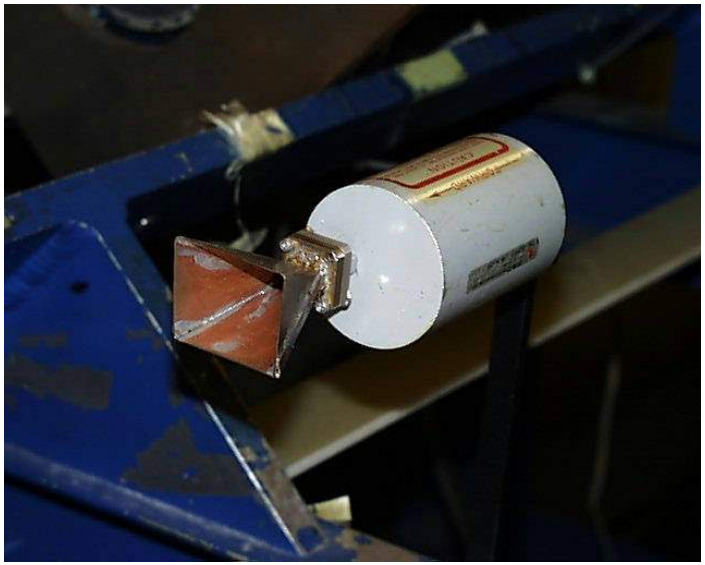
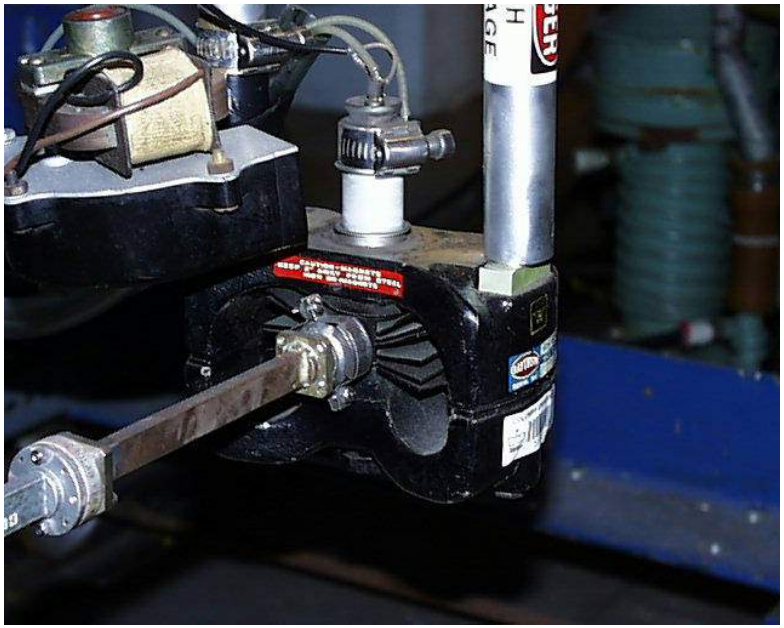
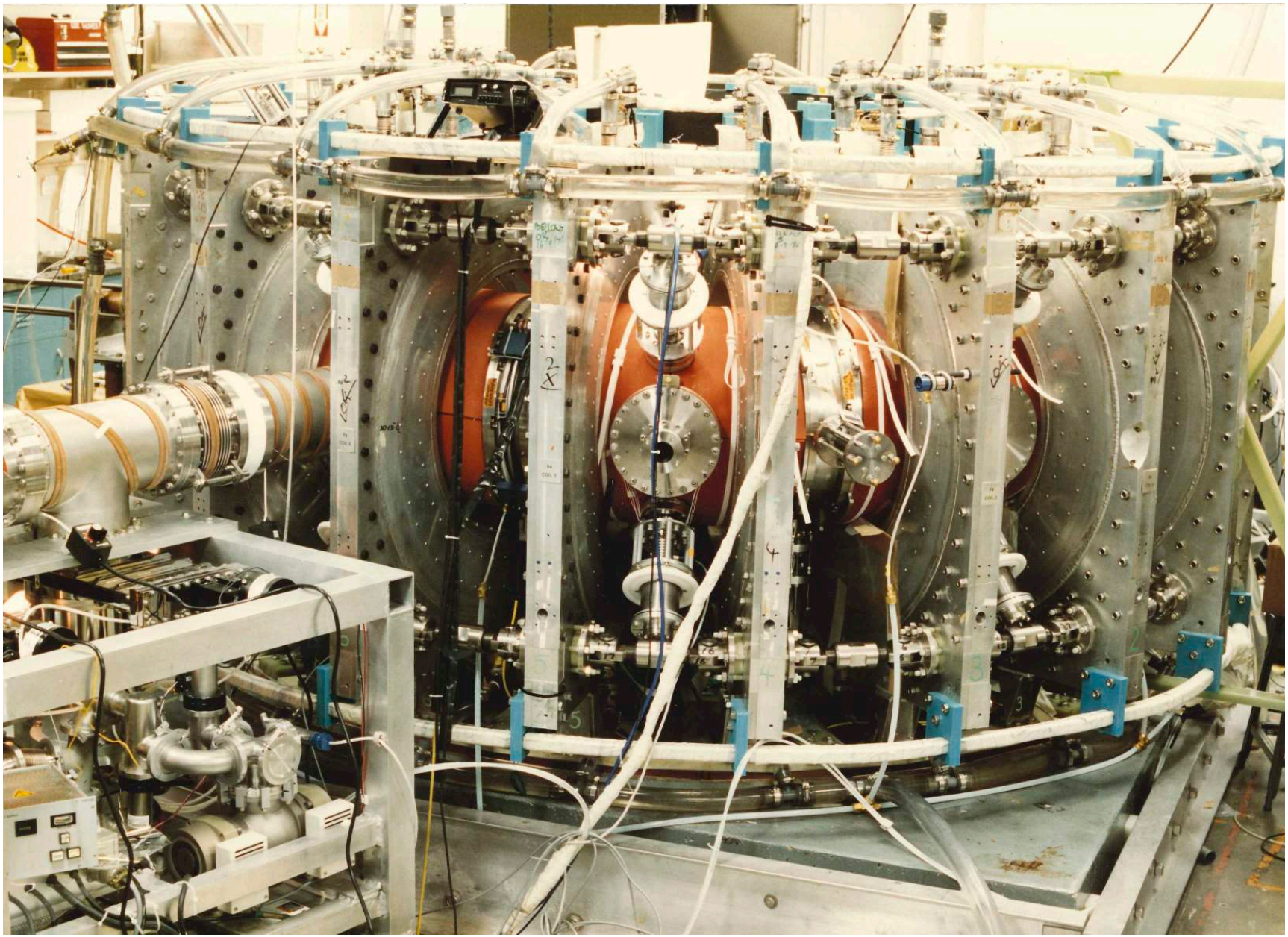
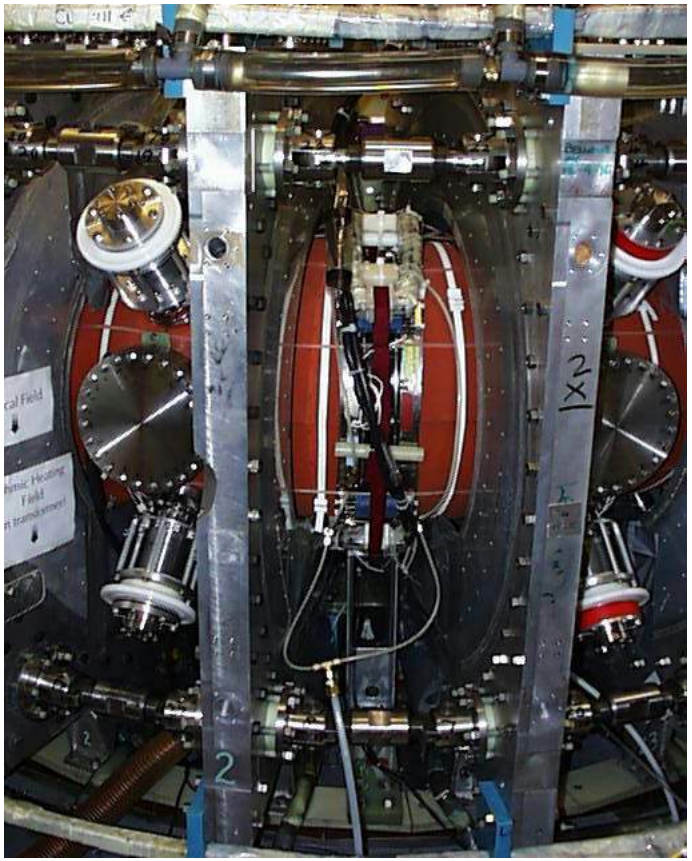


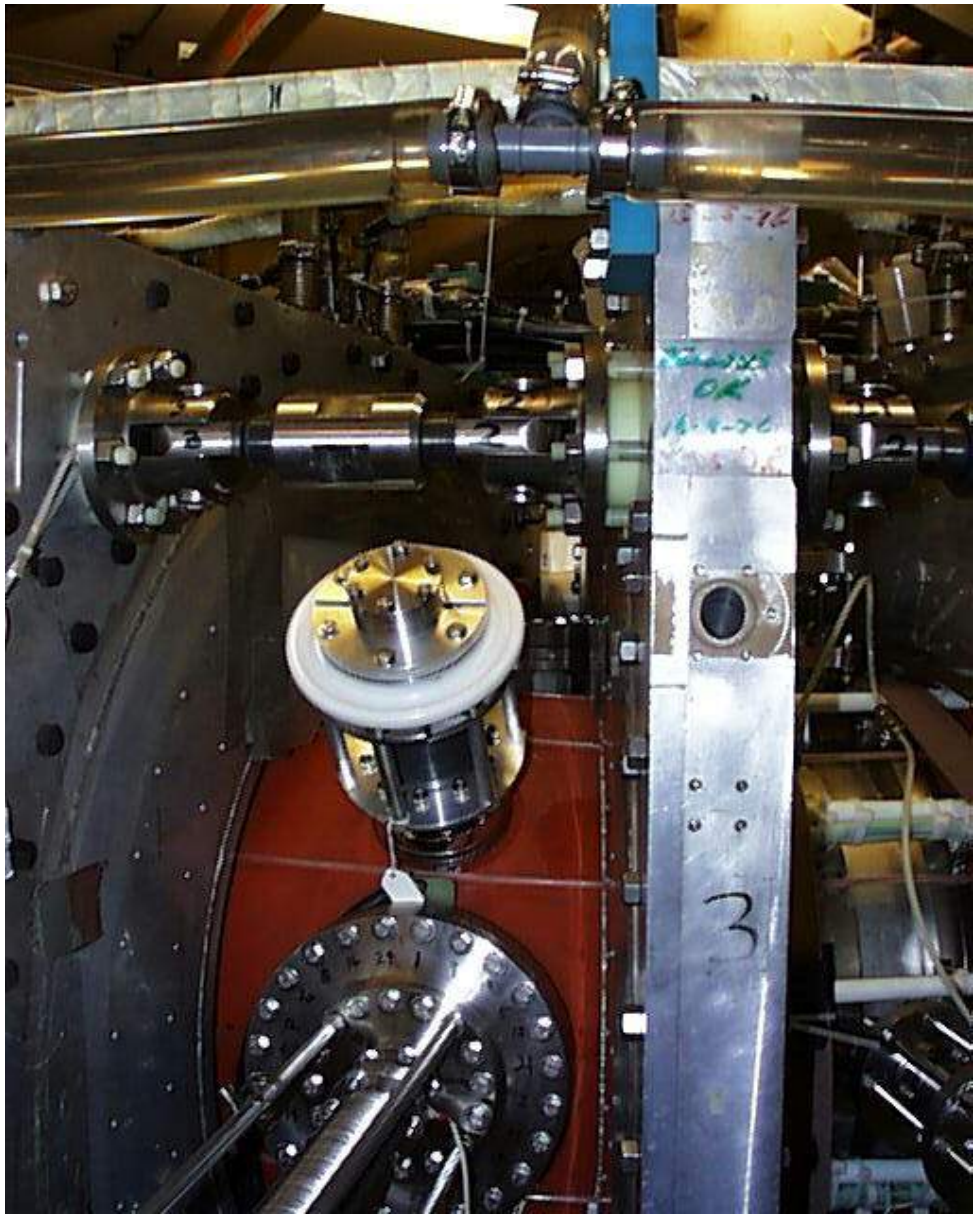

HIGH
VOLTAGE

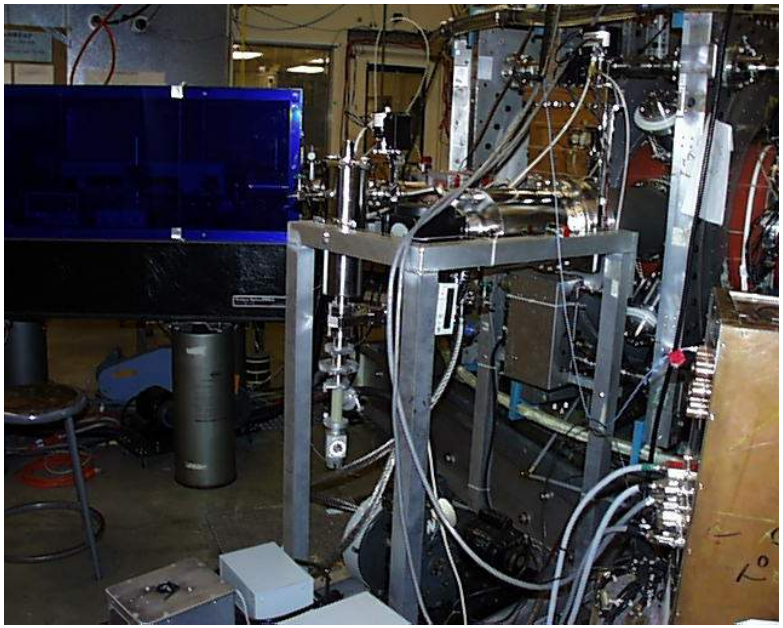


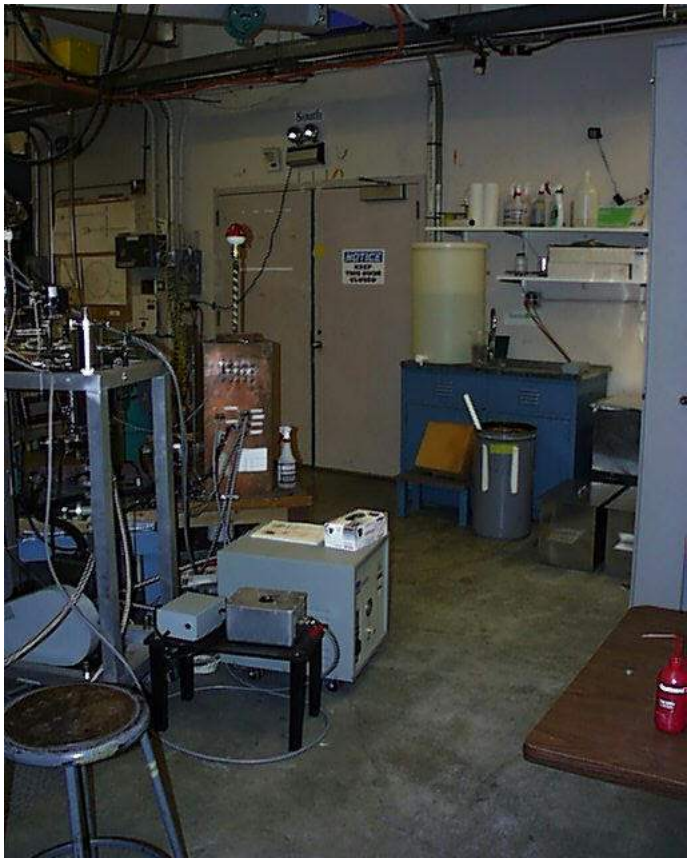


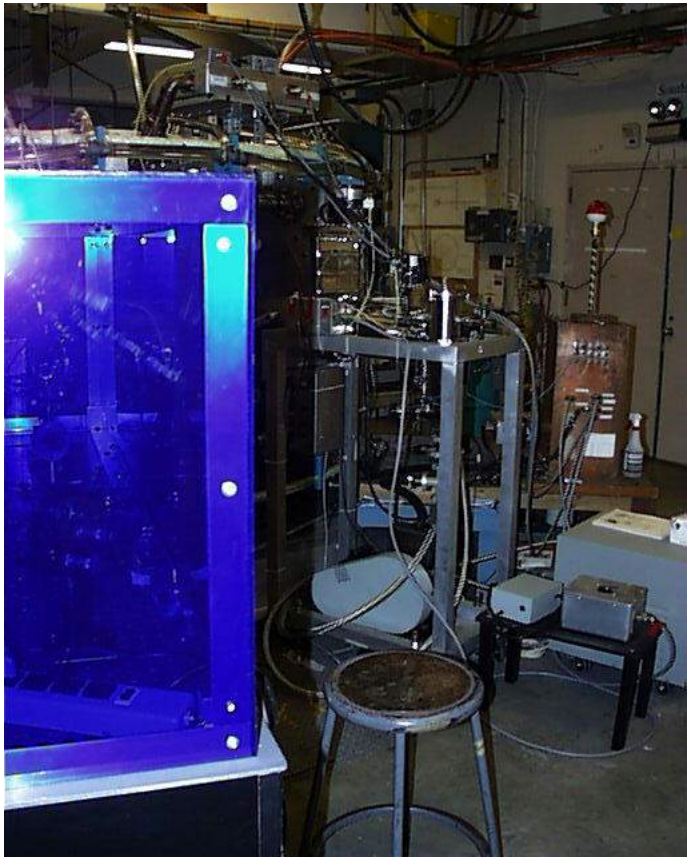



X2
2


3

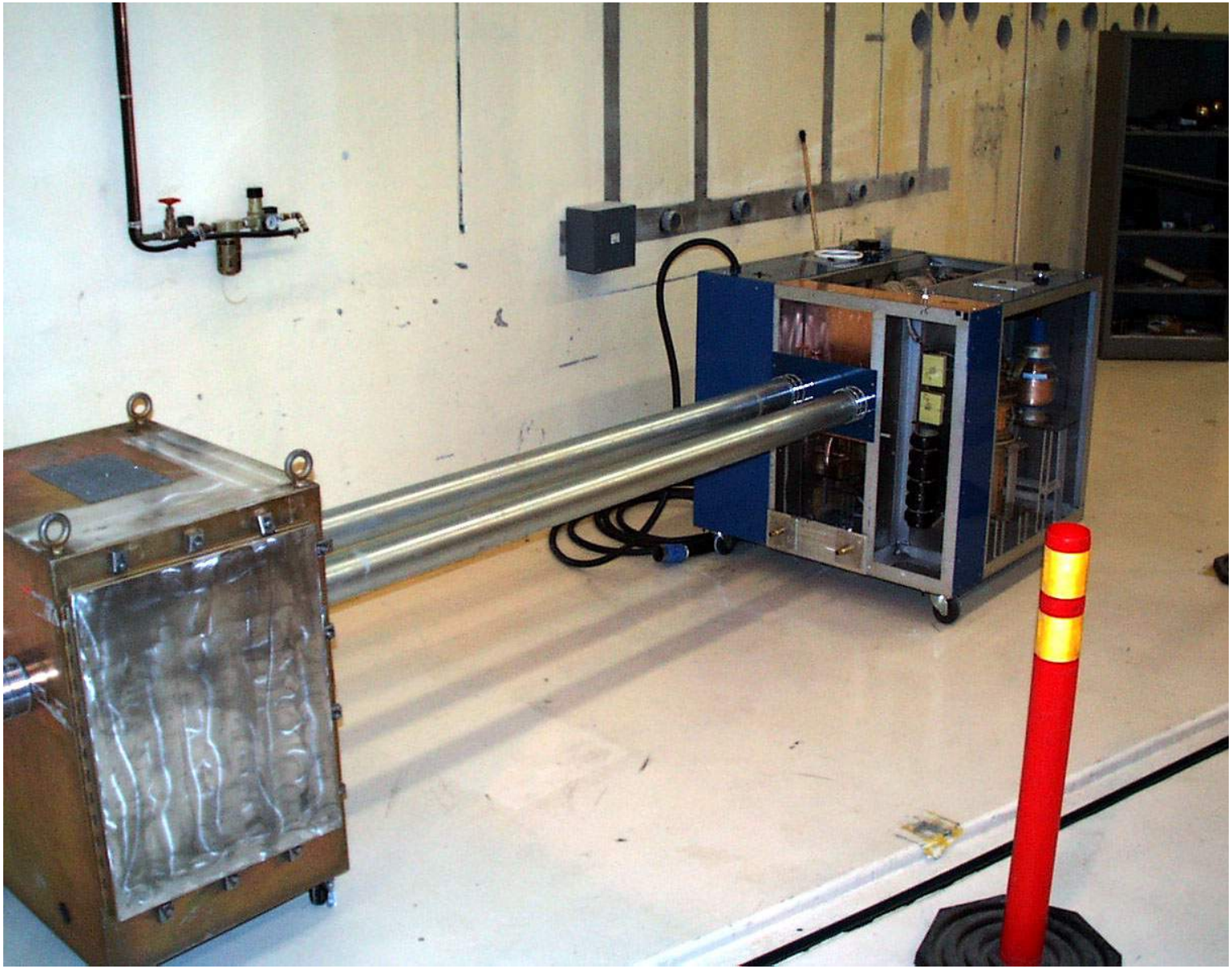


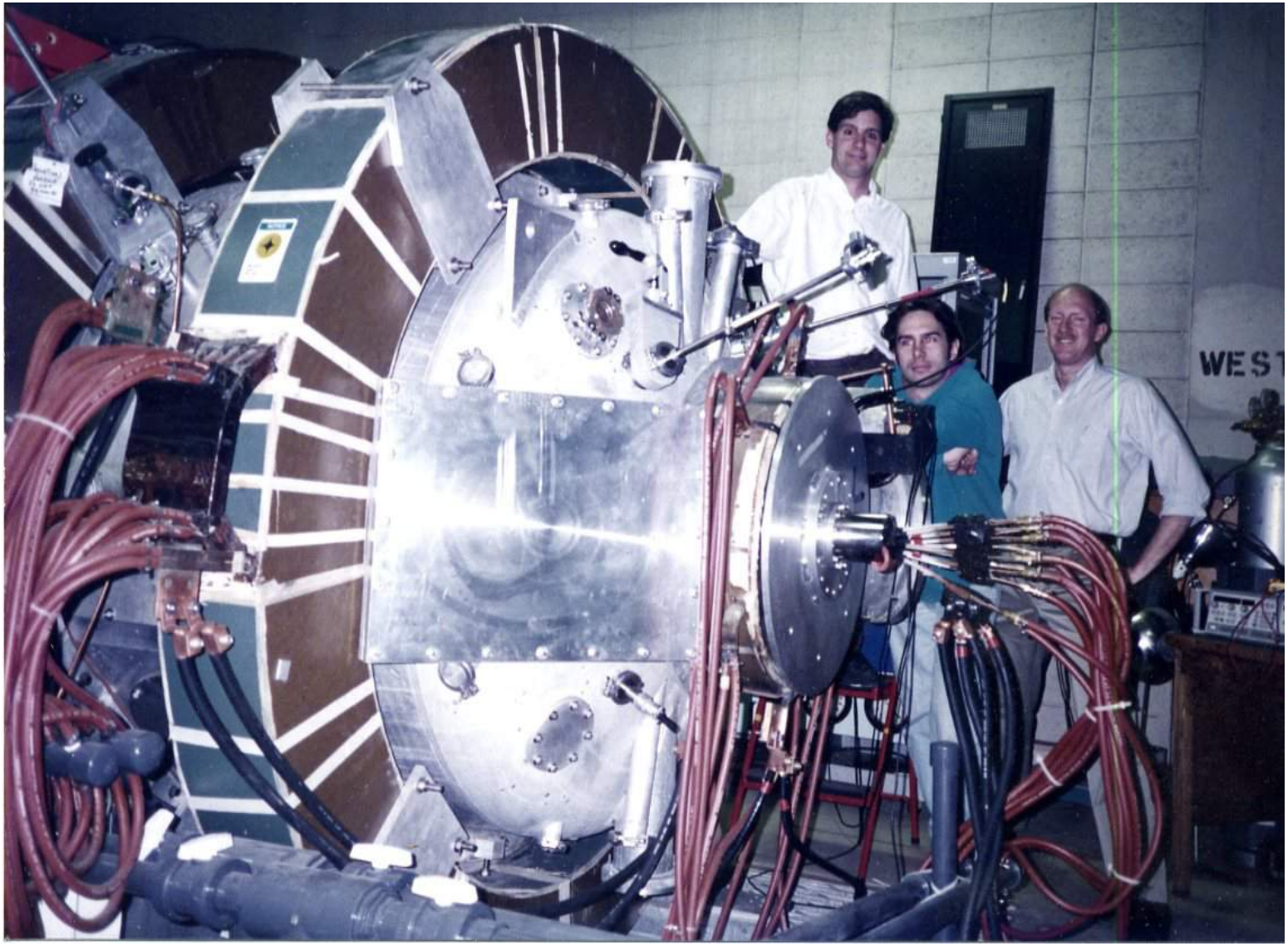




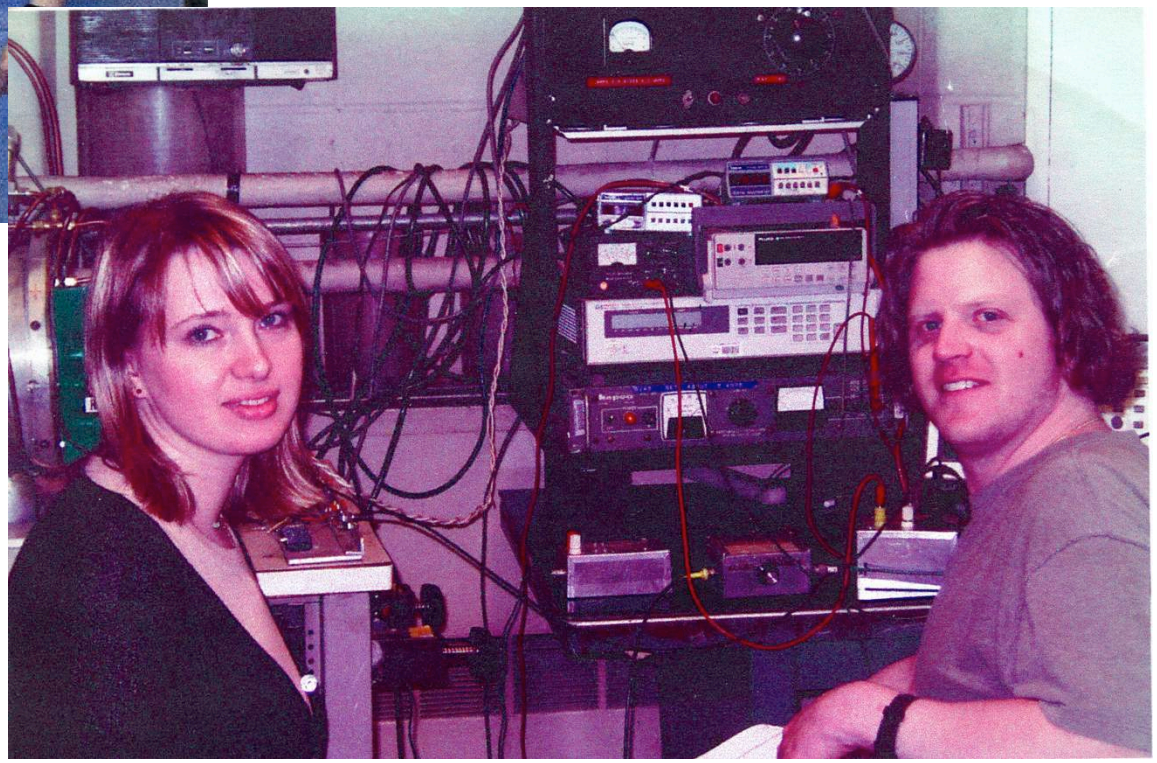
HBT RF Assembly

HBT RF Assembly



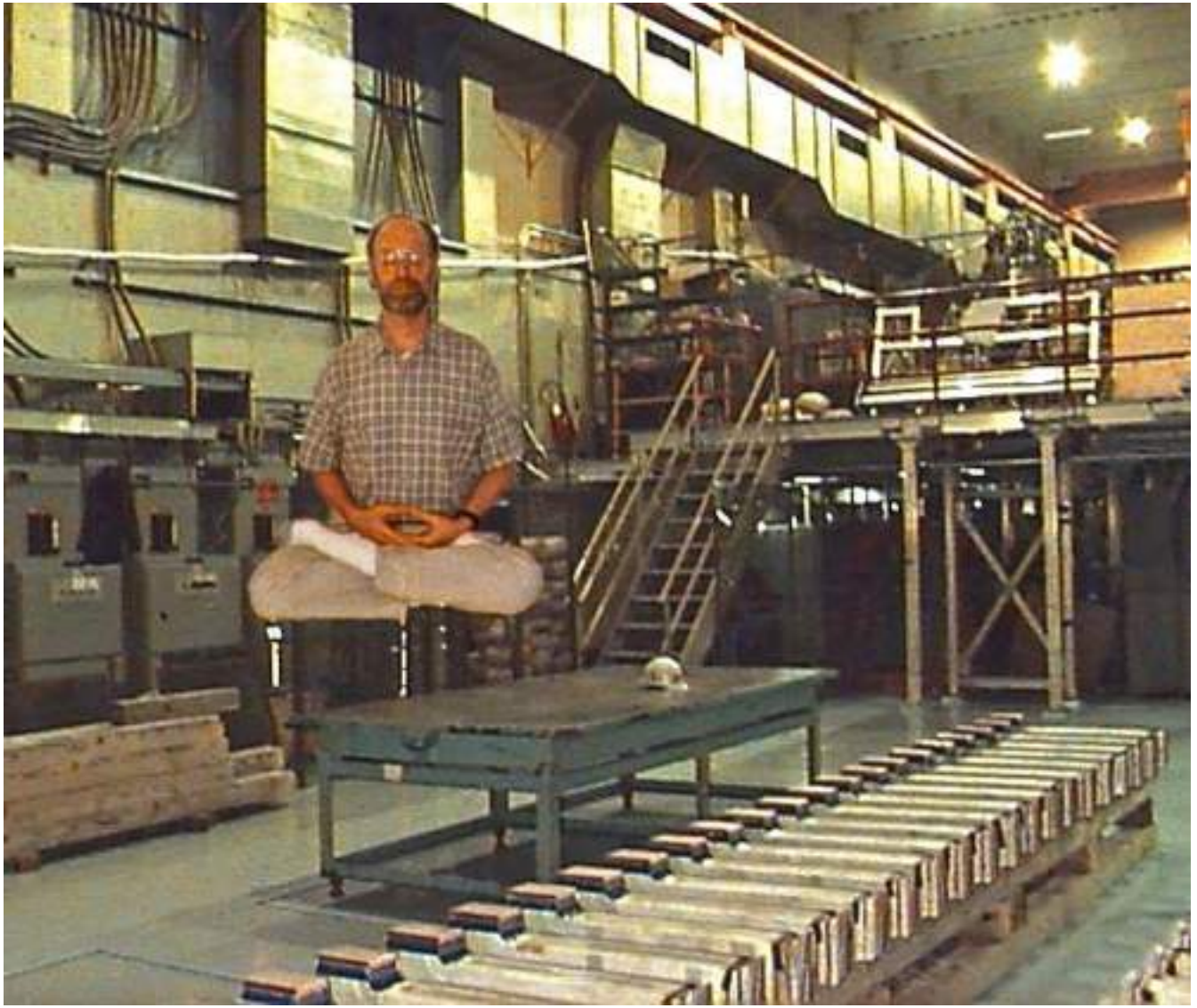

WEST


DALIS



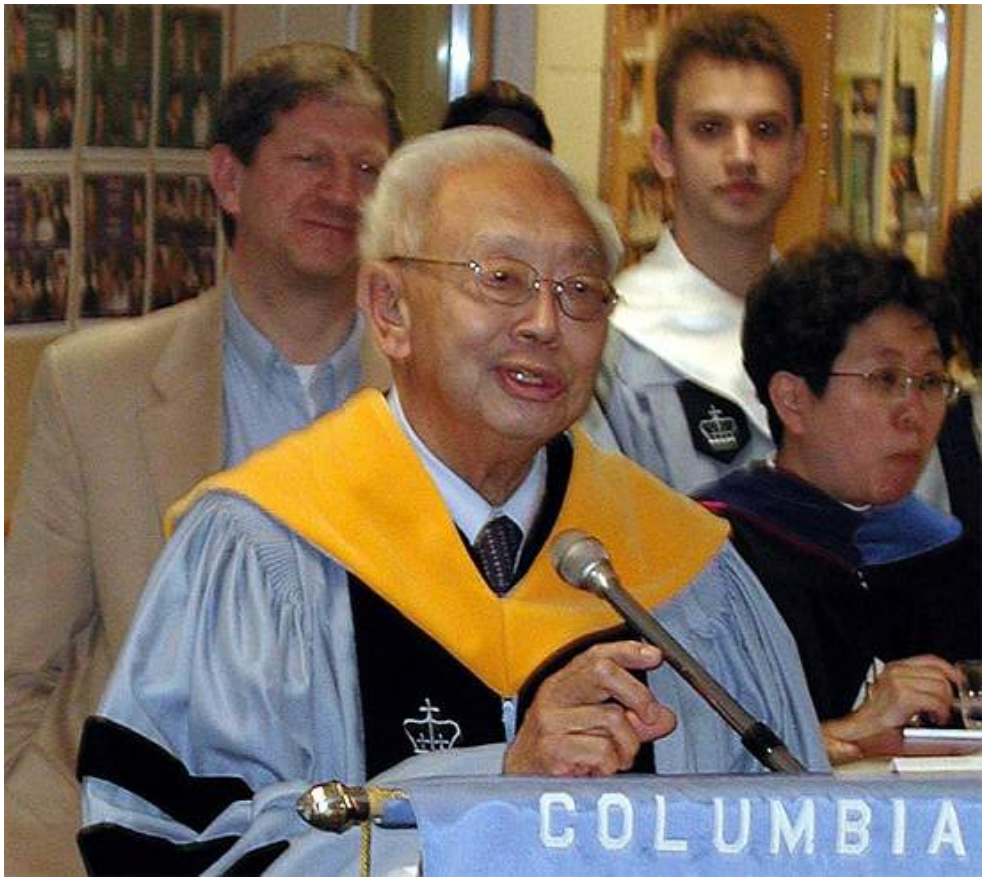
2000-
2001

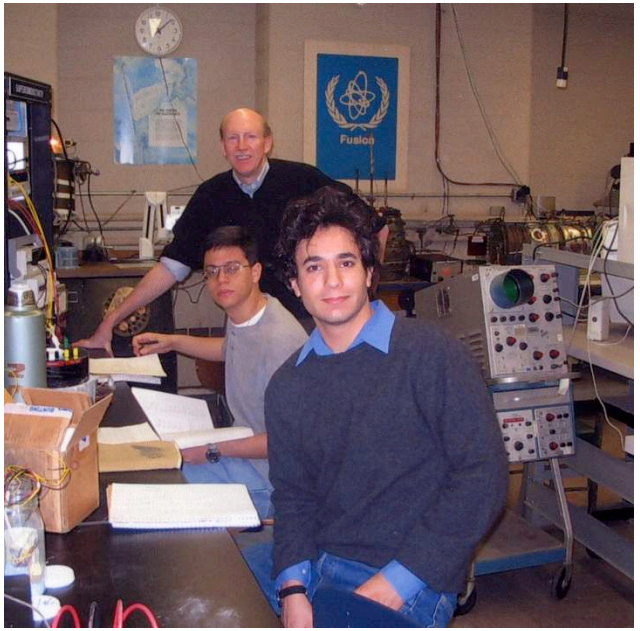
2004

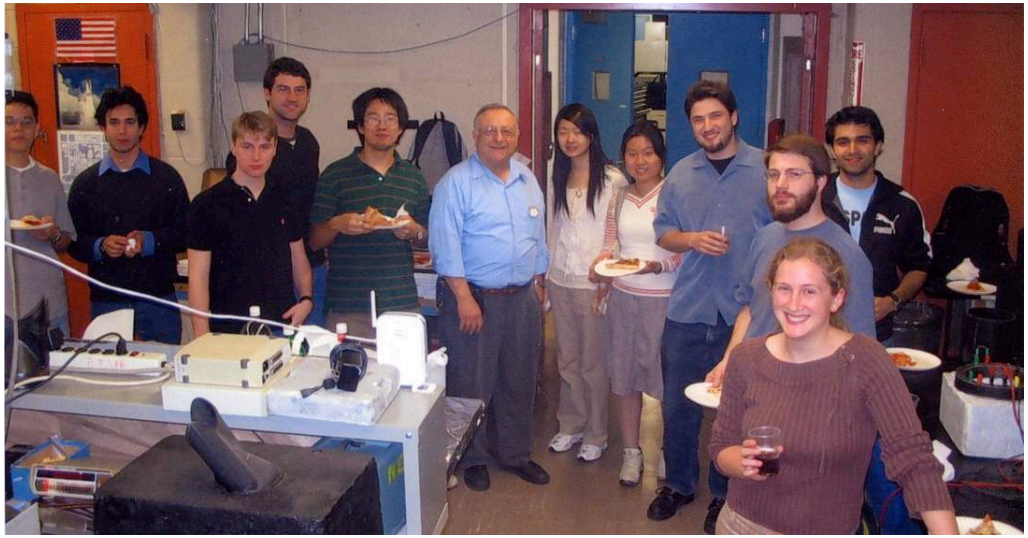


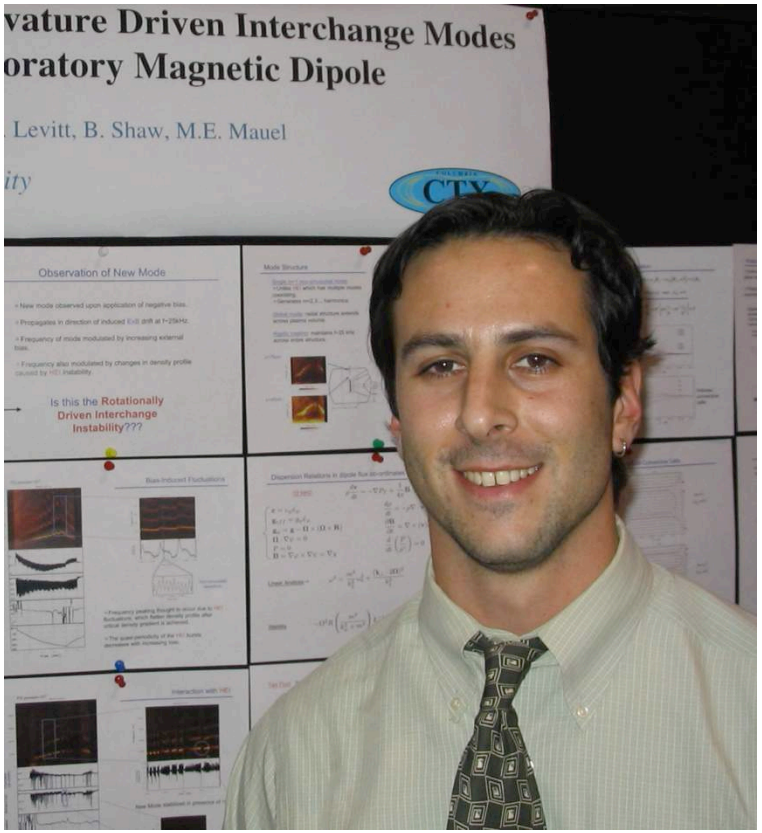
2005

2005




Fusion

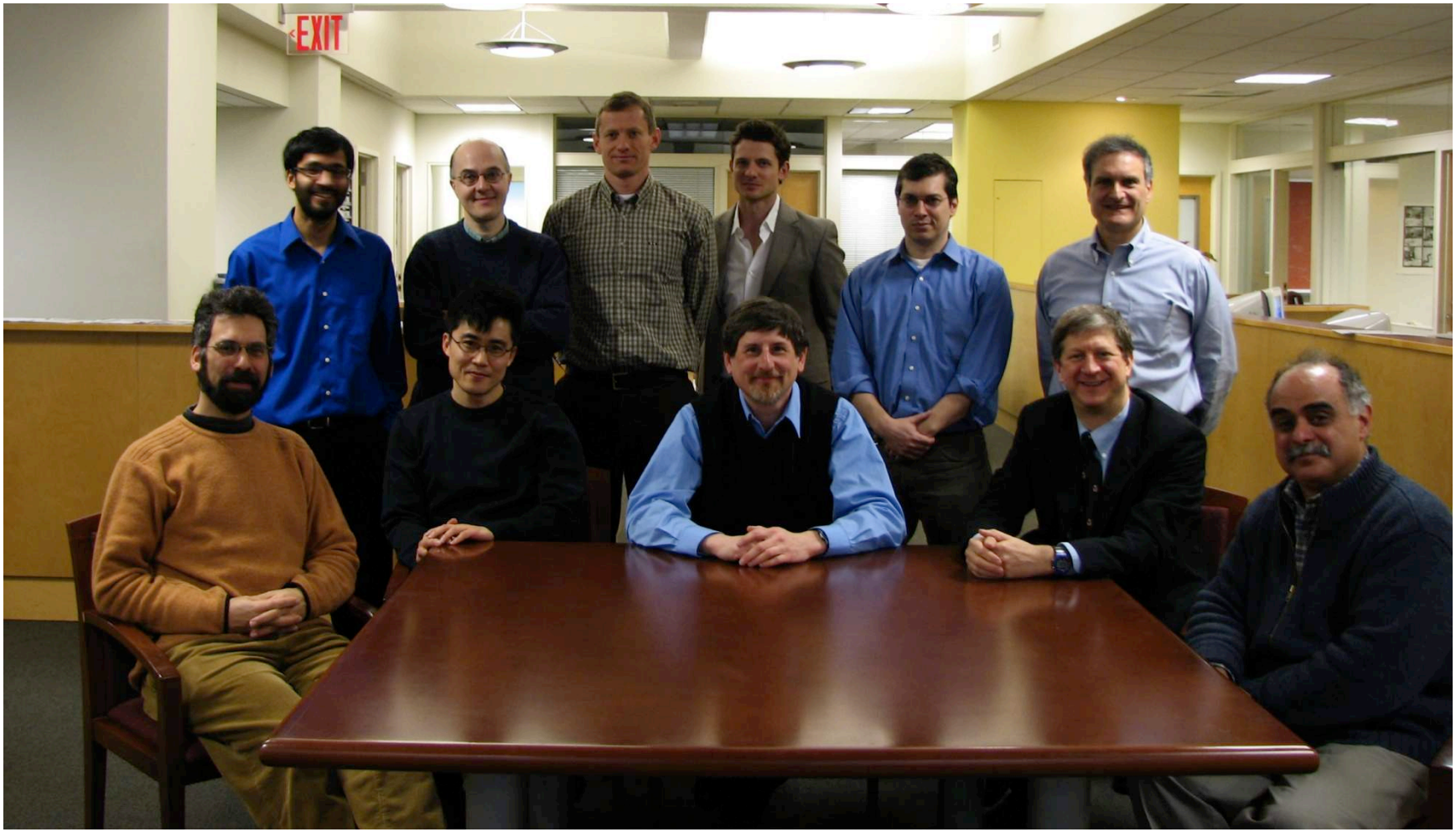



vature Driven Interchange Modes
oratory Magnetic Dipole
Levitt, B. Shaw, M.E. Mauel
Observation of New Mode
Is this the Rotationally Driven Interchange Instability???


DANGER
HIGH VOLTAGE

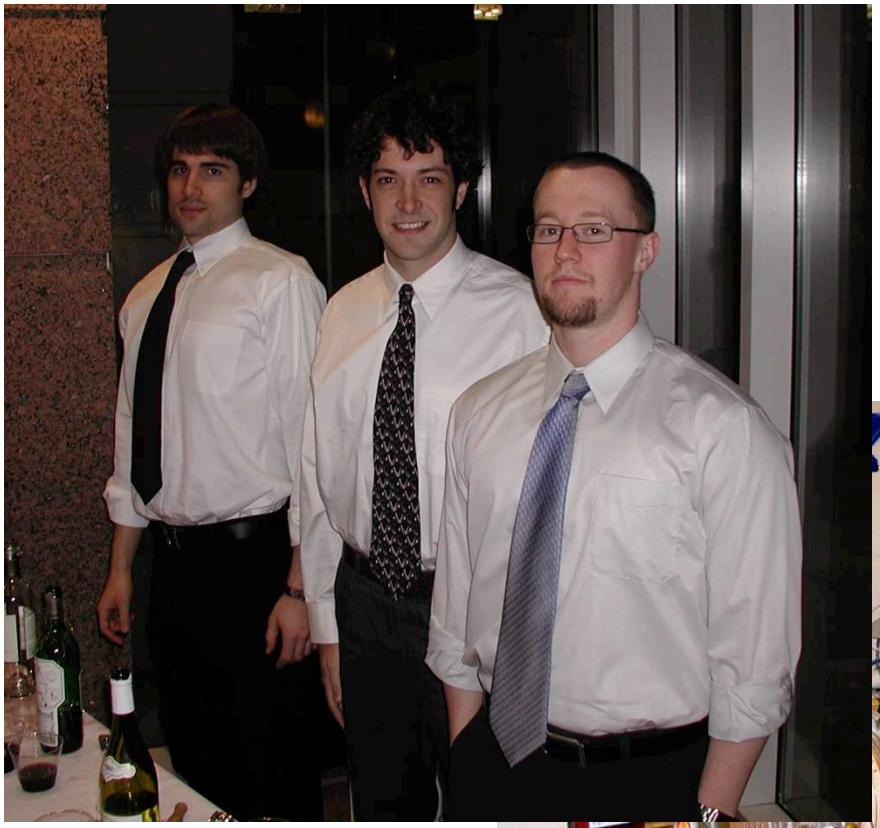
2006

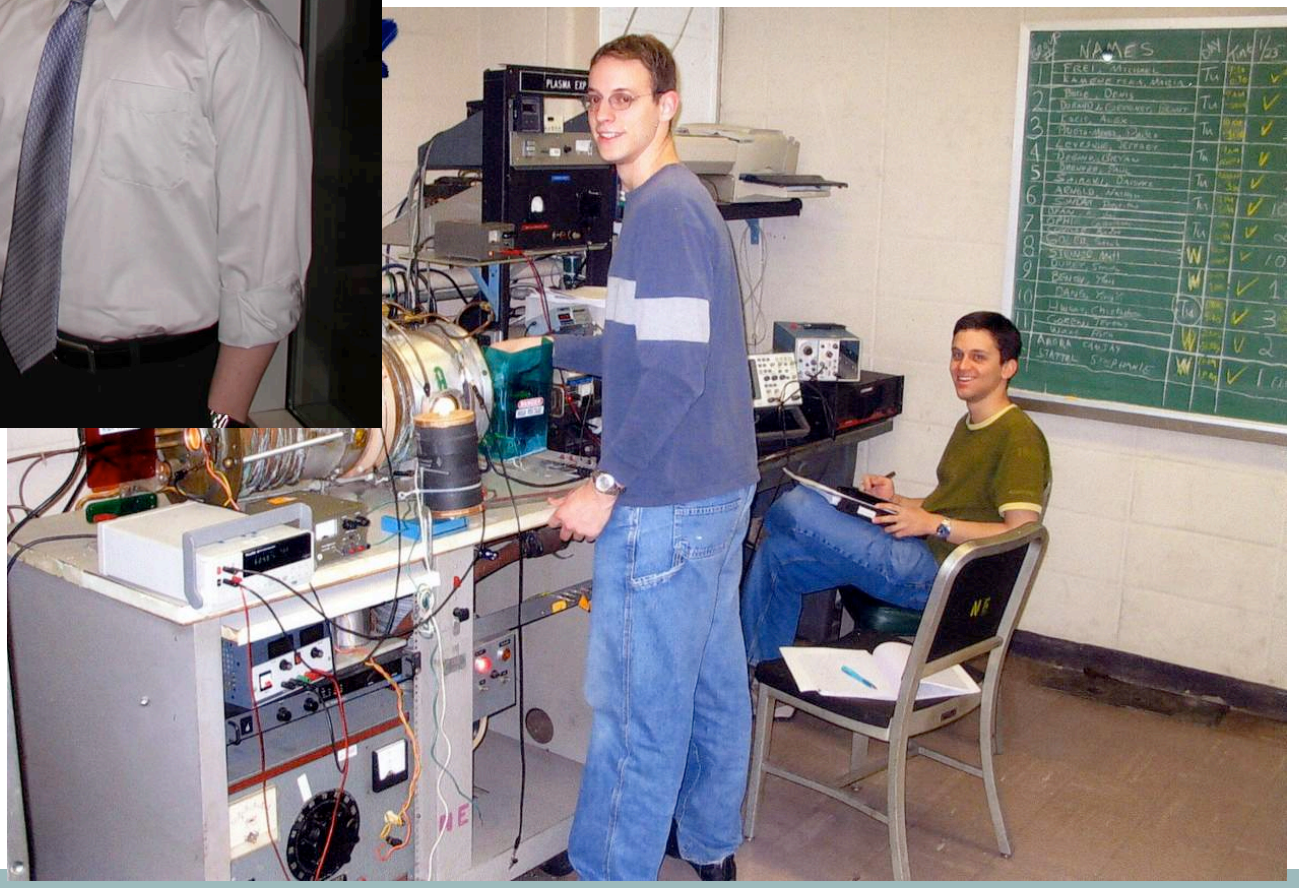
2007



2007

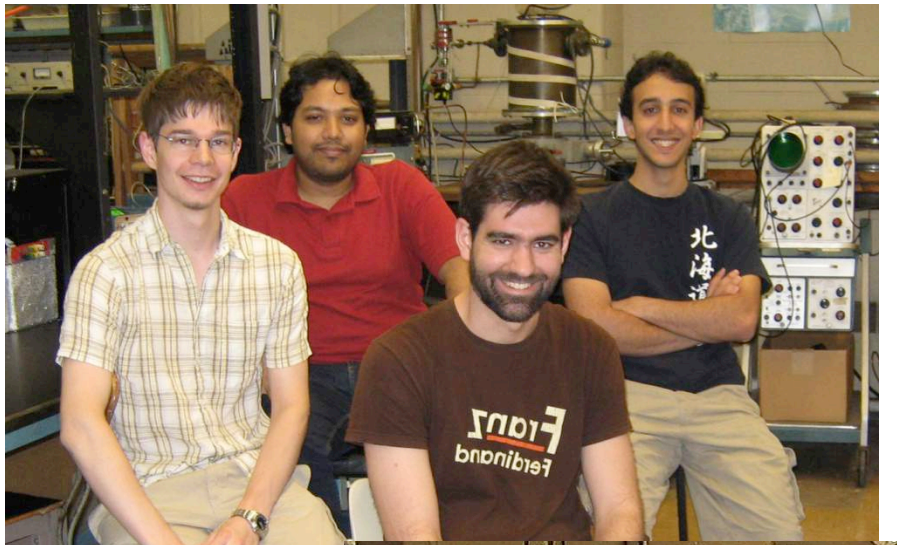
2008

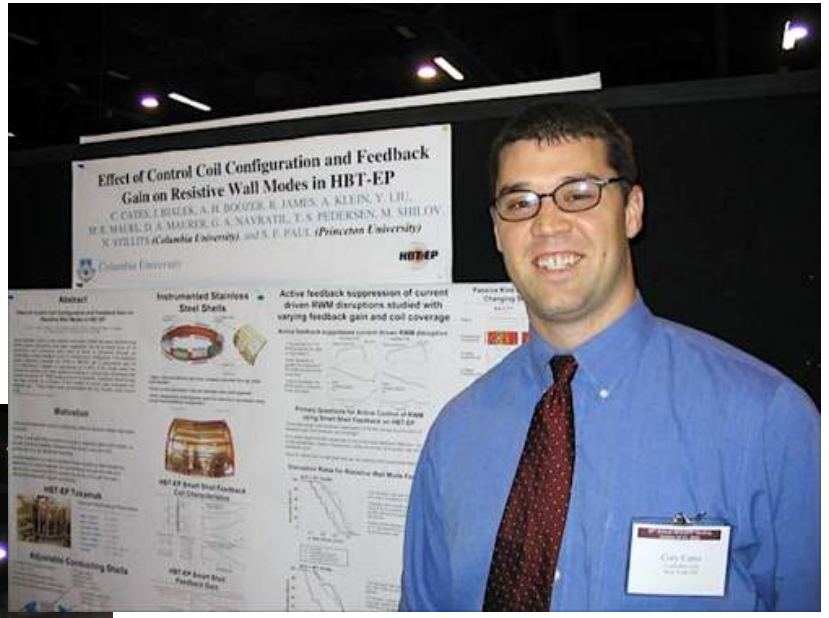


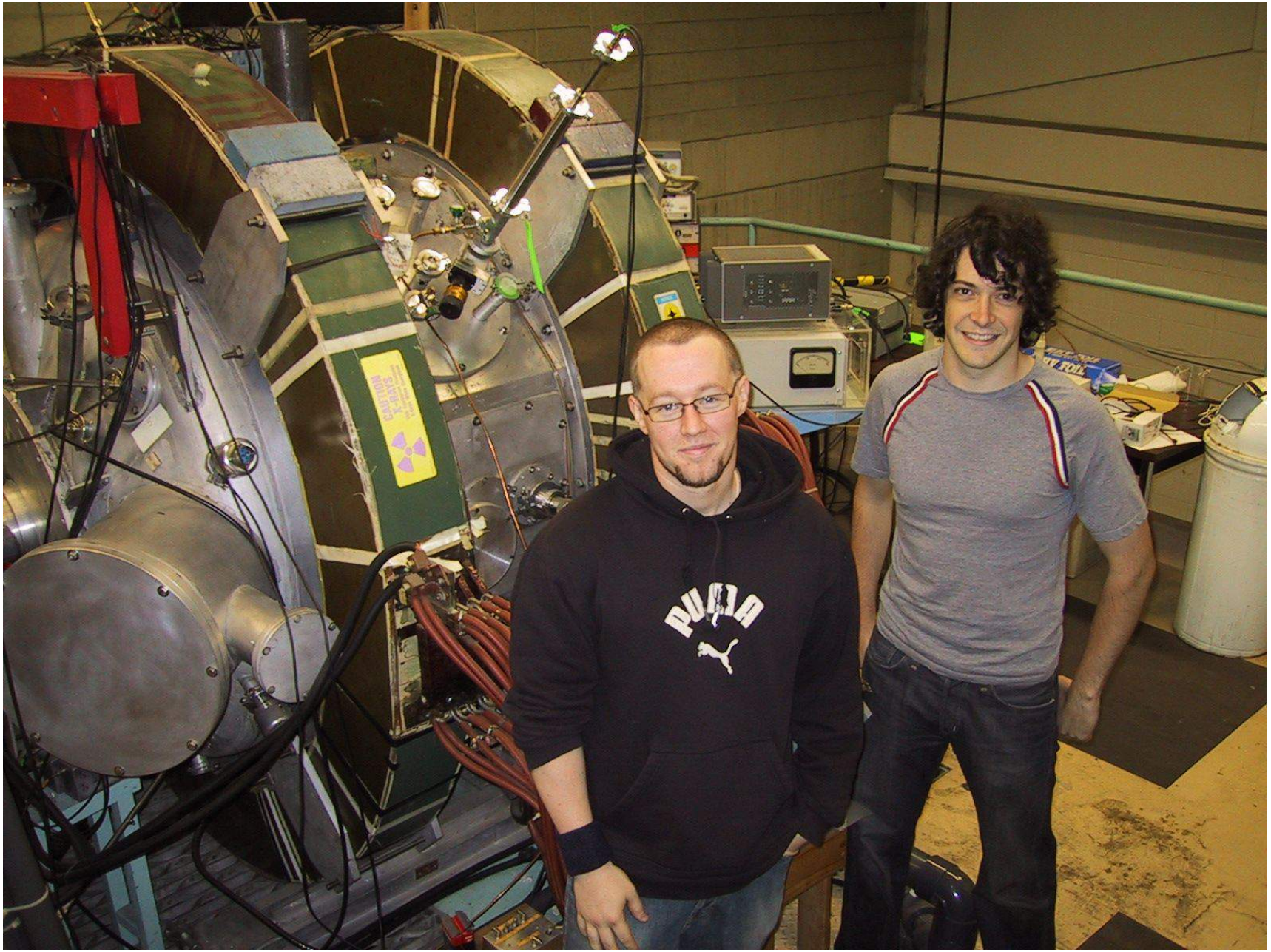

NAMES
PLASMA EXP

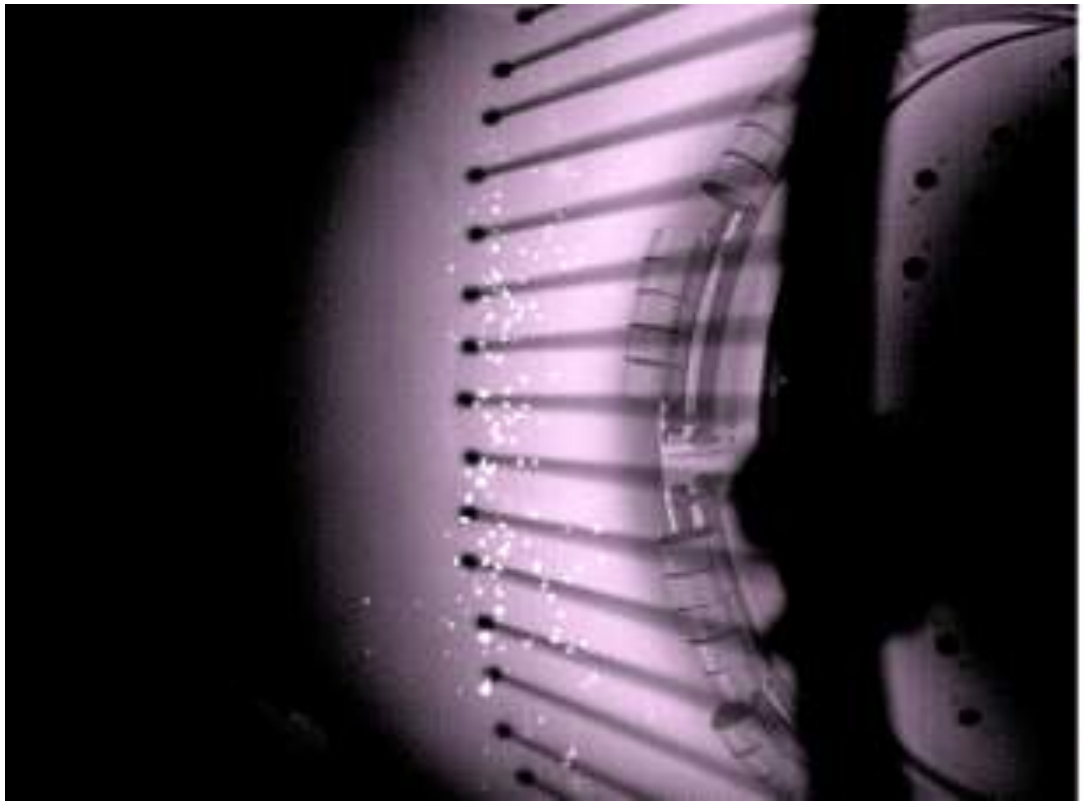
2009

2009



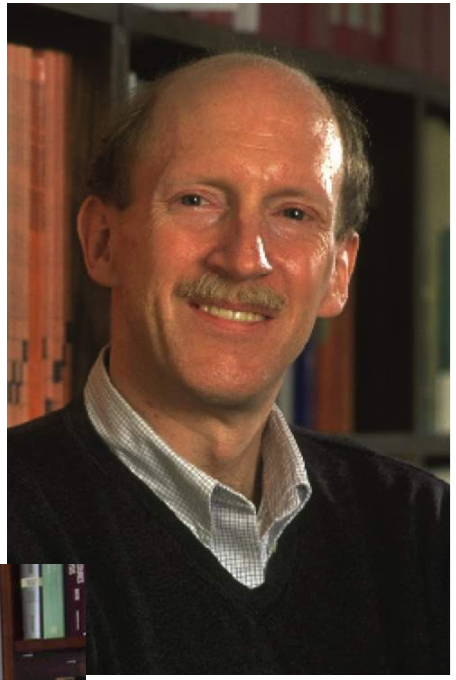

Effect of Control Coil Configuration and Feedback
Gain on Resistive Wall Modes in HBT-EP
HBT-EP
Abstract
Instrumented Stainless Steel Shells
Active feedback suppression of current driven RWM disruptions studied with varying feedback gain and coil coverage
Motivation

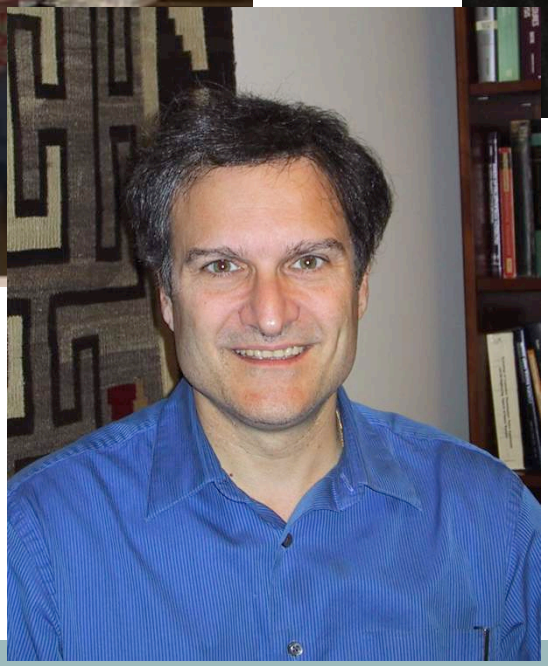

PUMA

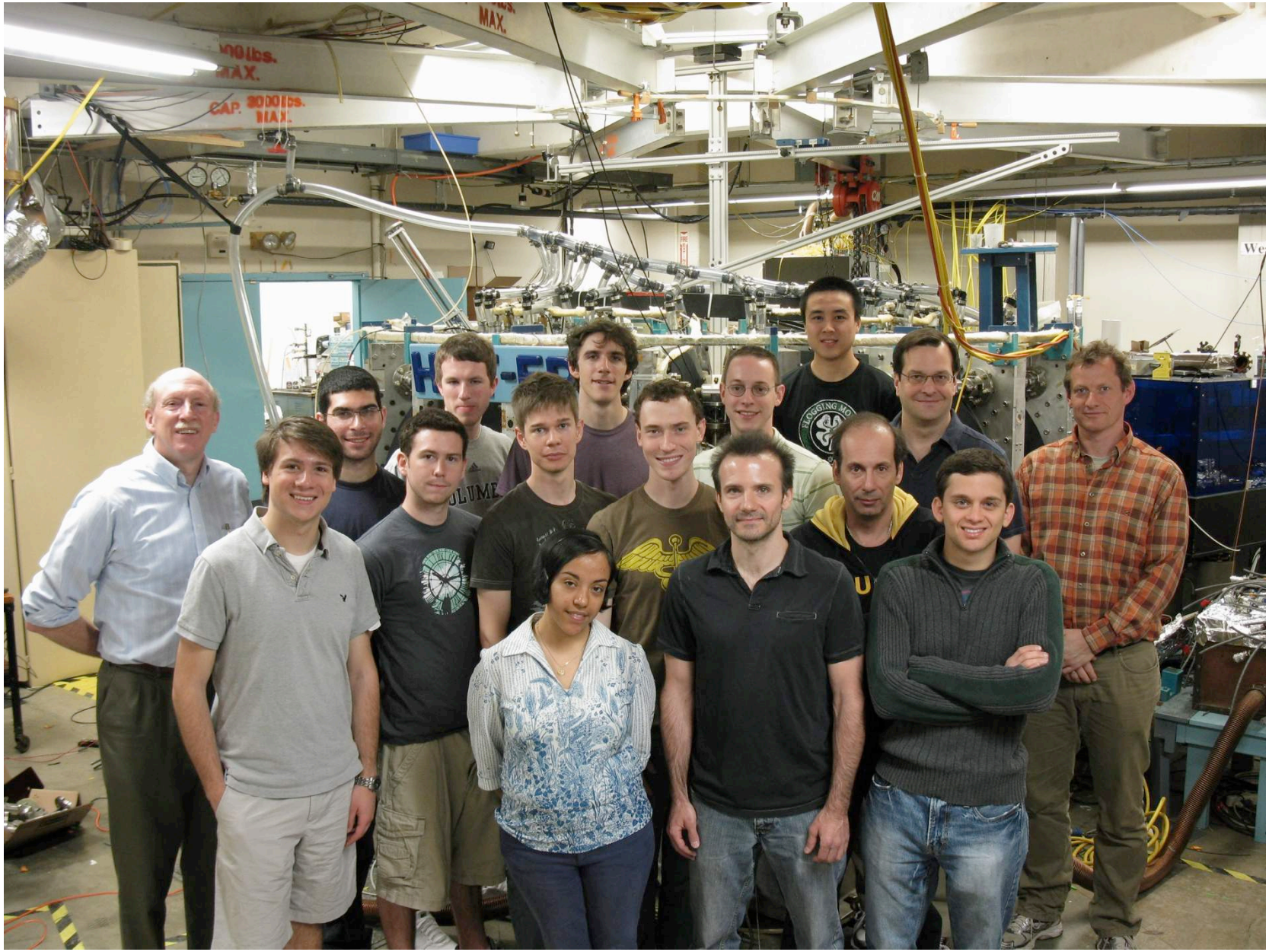



CTX


FRANZIA



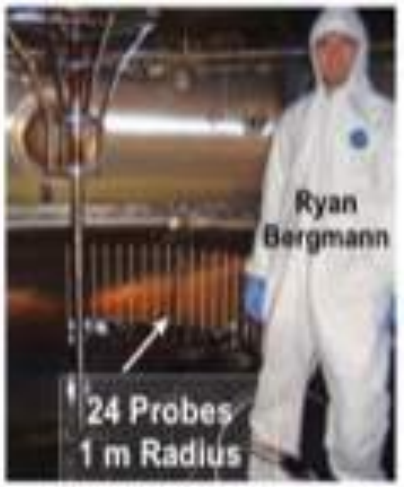


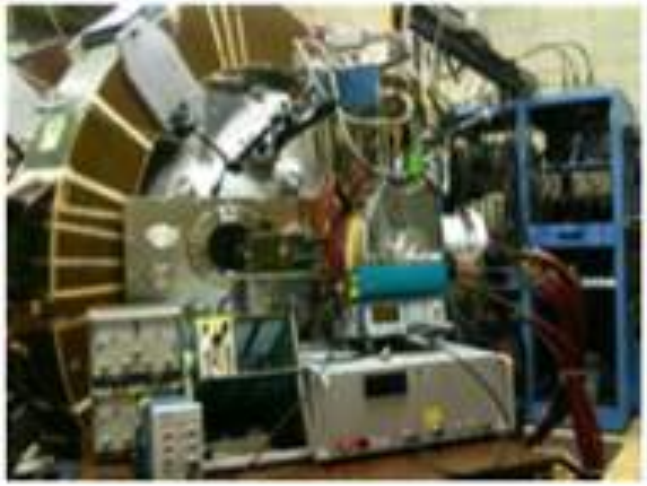

MAX.
CAP. 30000lbs.
MAX.

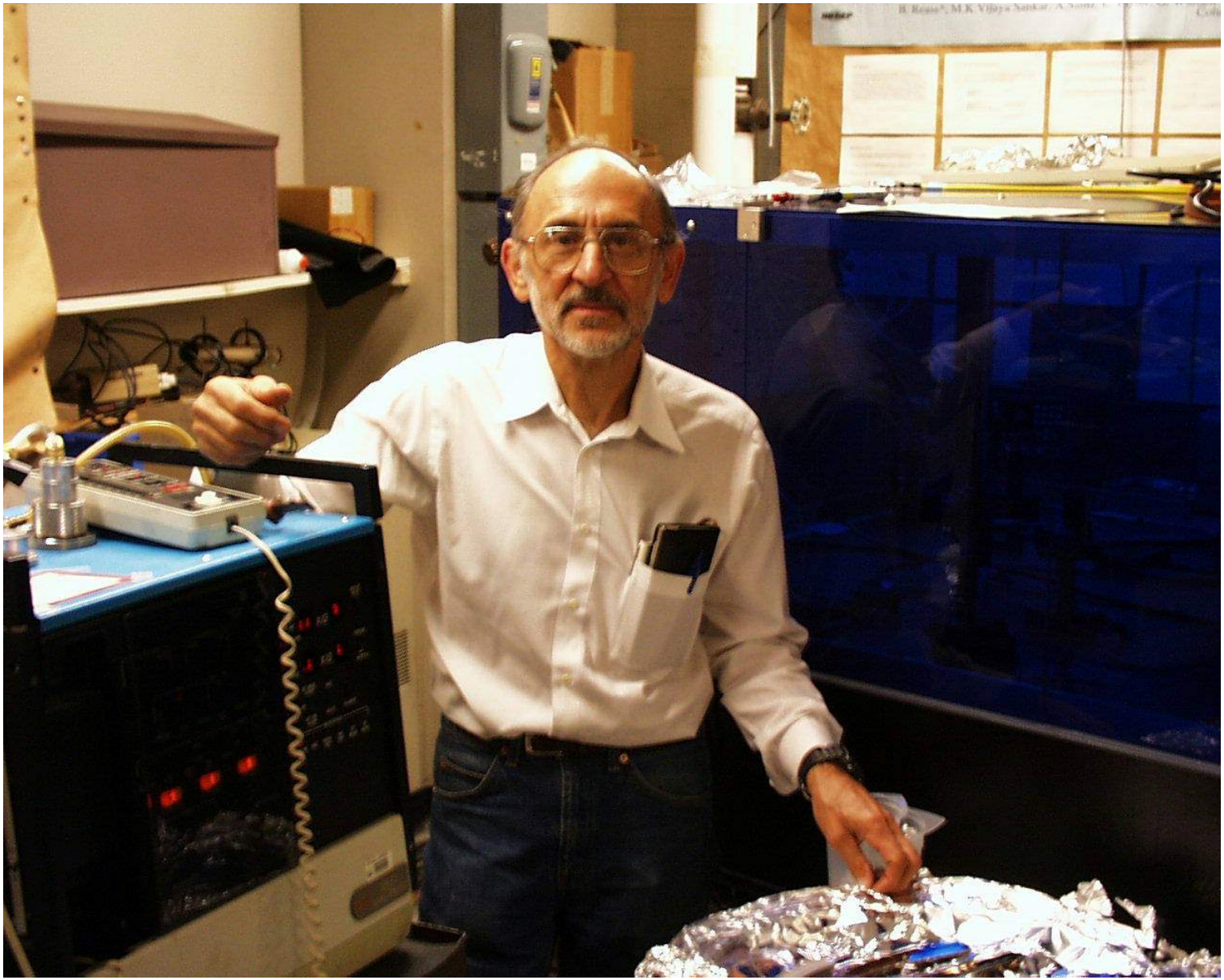

NOT AN

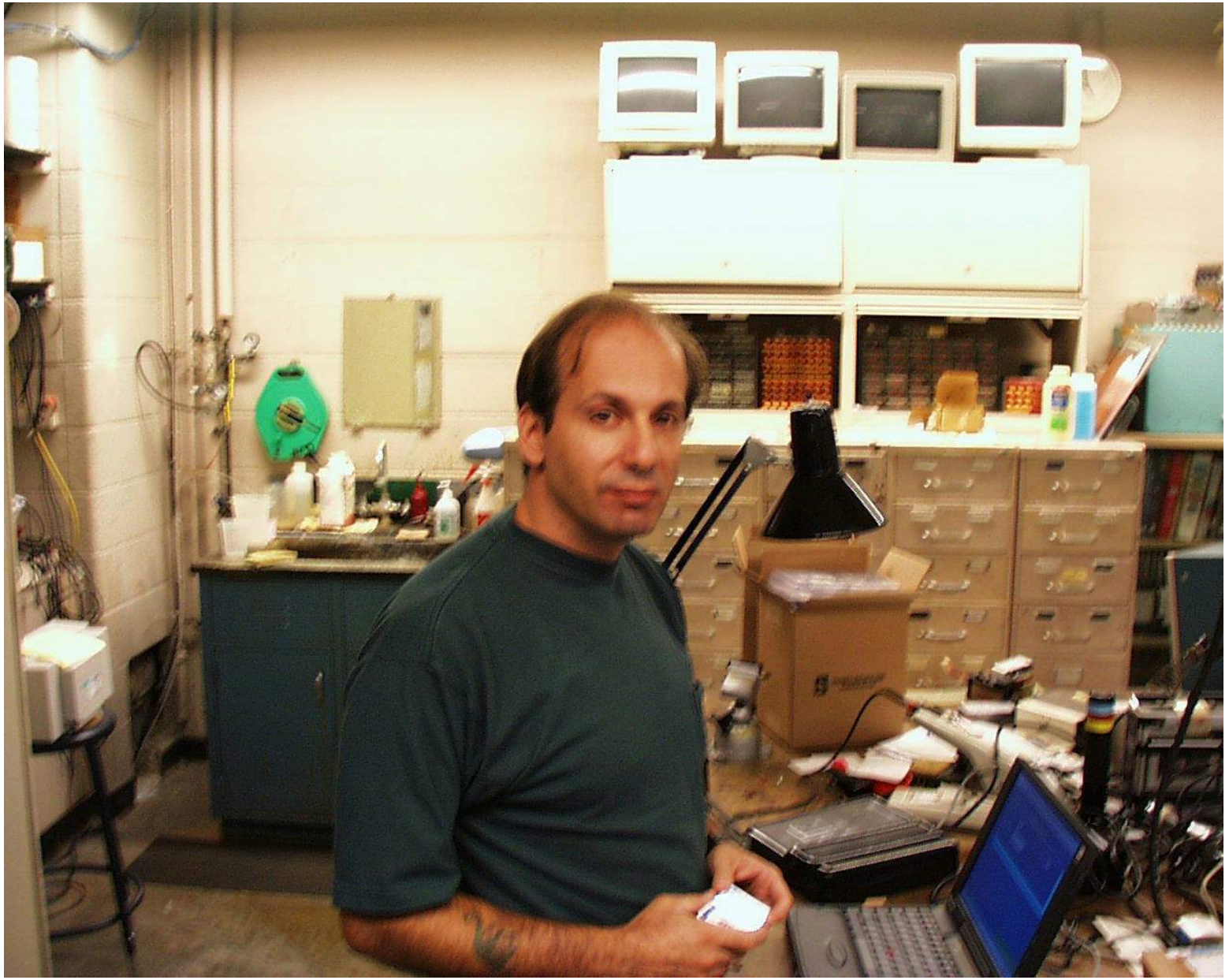
2009

2011 NSF/DOE Fund Laboratory Magnetosphere Collaboration



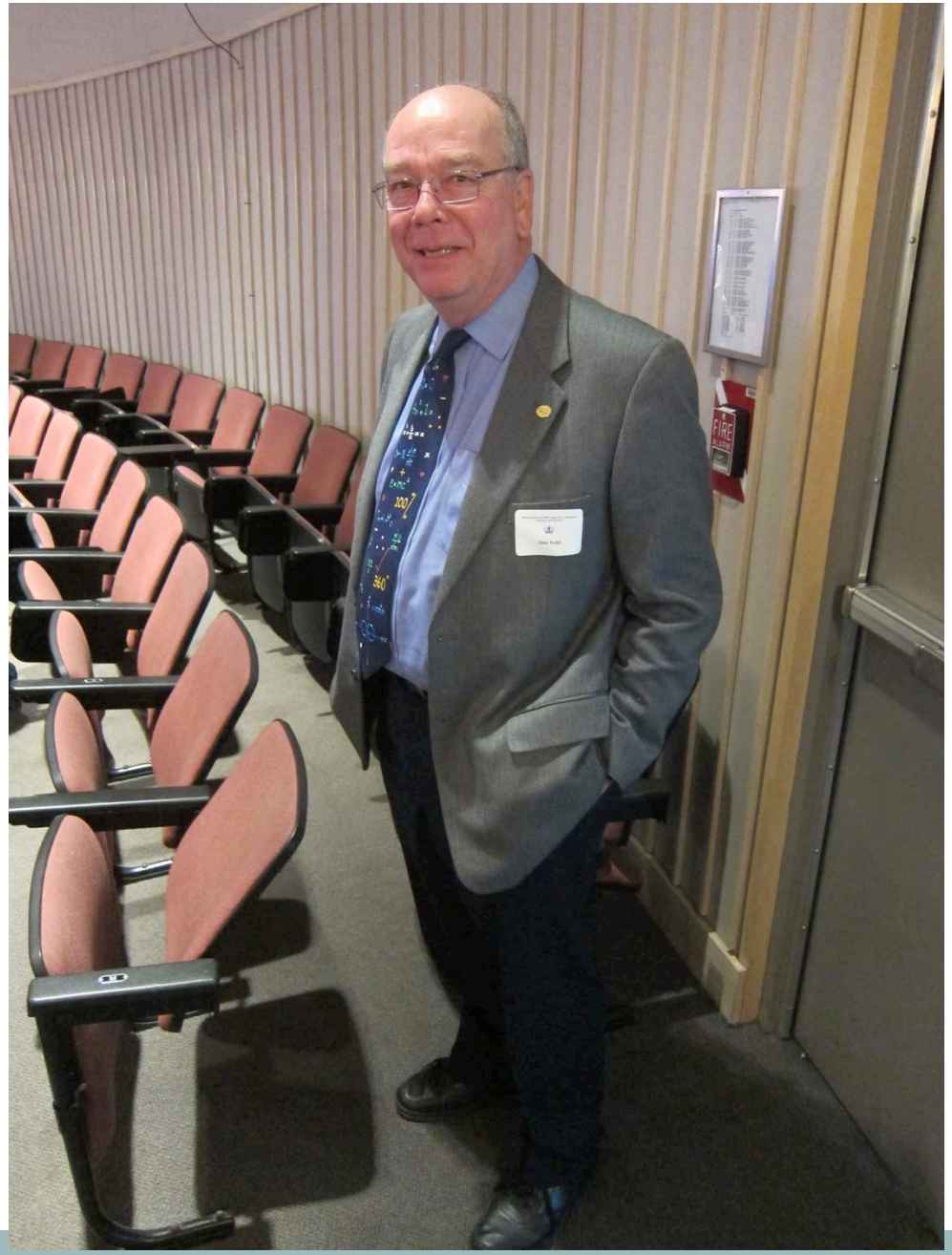







412
AUDITORIUM
Plasma Physics Lab 50th Anniversary Celebration


Plasma Physics Lab 50th Anniversary
Thursday, April 26, 2012
NO FOOD
ALLOWED
in Auditorium
Plasma Physics Lab 50th
Anniversary Celebration
Fu Foundation School of Engineering and Applied Science / Columbia University in the City of New York
2:00 PM
Davis Auditorium, CEPSR
Personal reflections /
Lab tour
5:30 PM
200 Mudd, APAM
Department Reception
7:30 PM
Faculty House Dinner

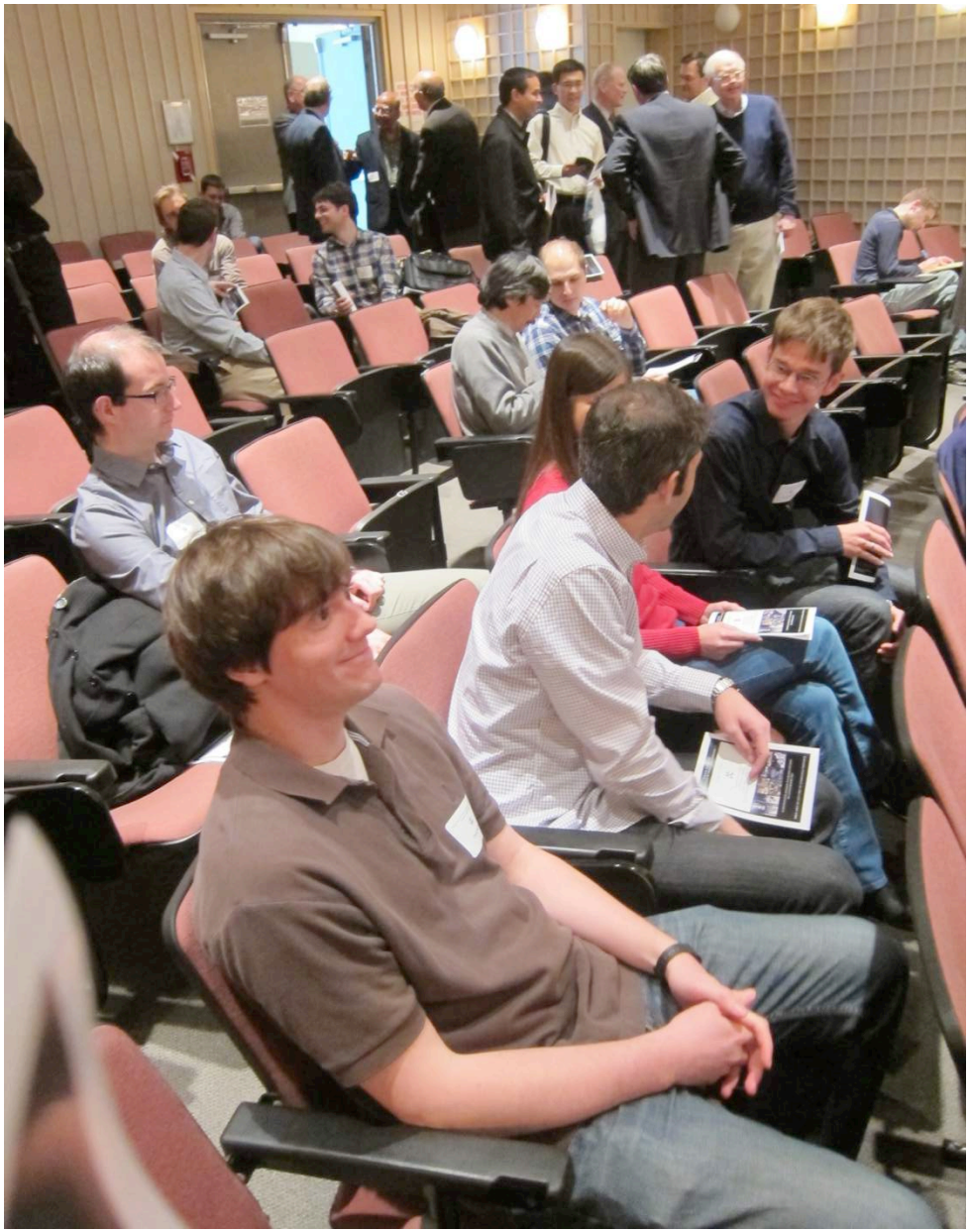

FIRE


EXIT

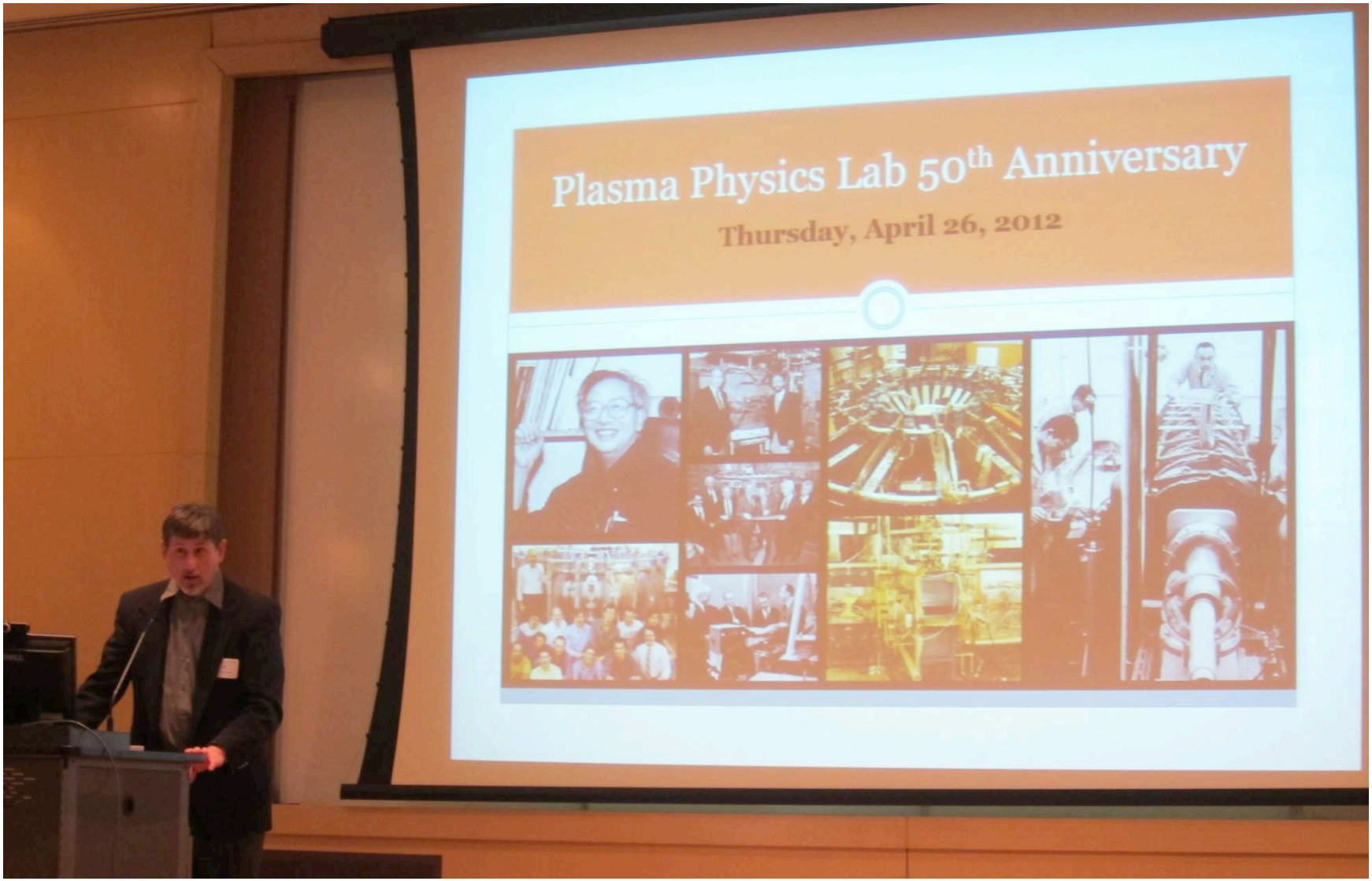

EXIT
EXIT


EXIT


EXIT



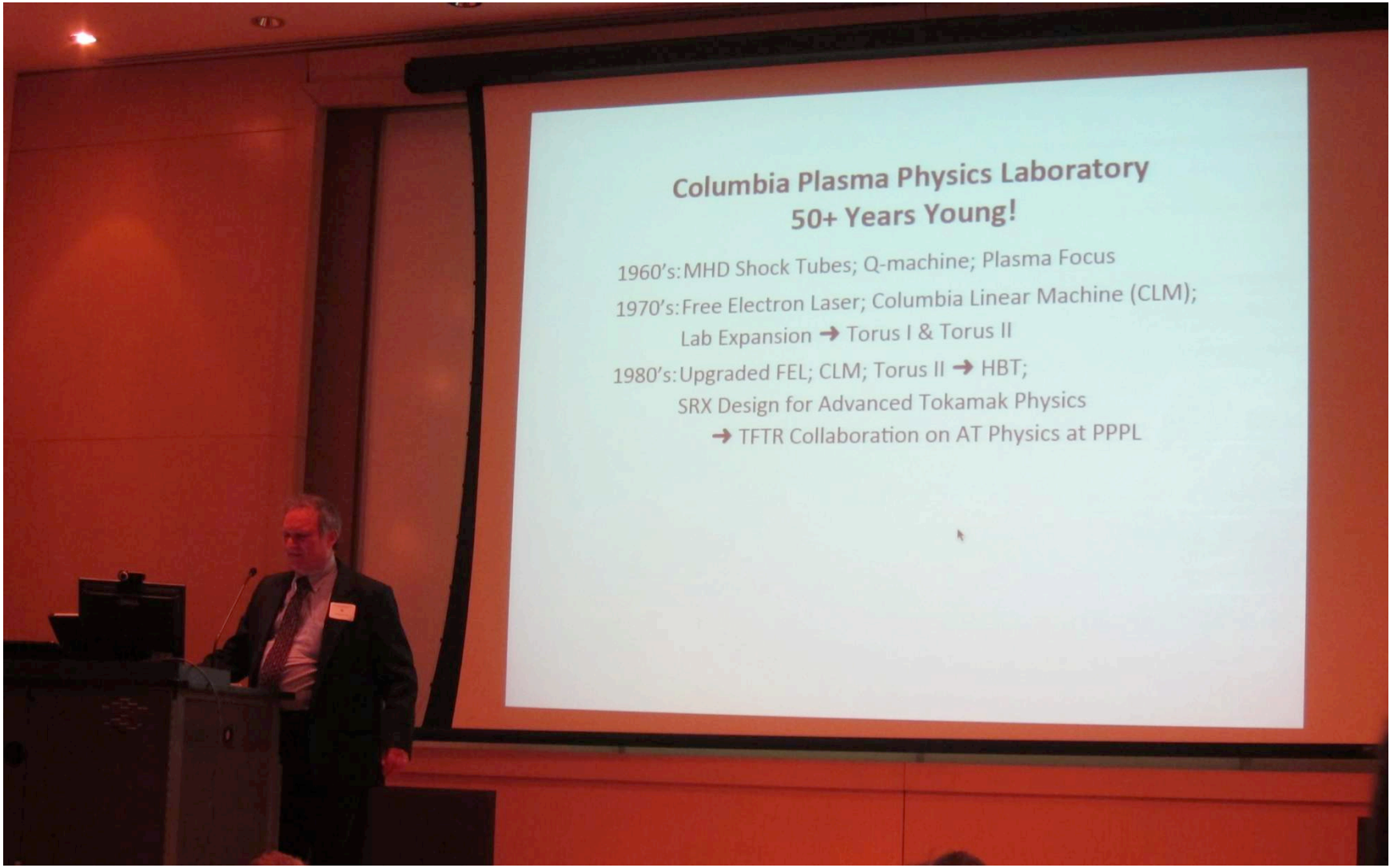

FIRE

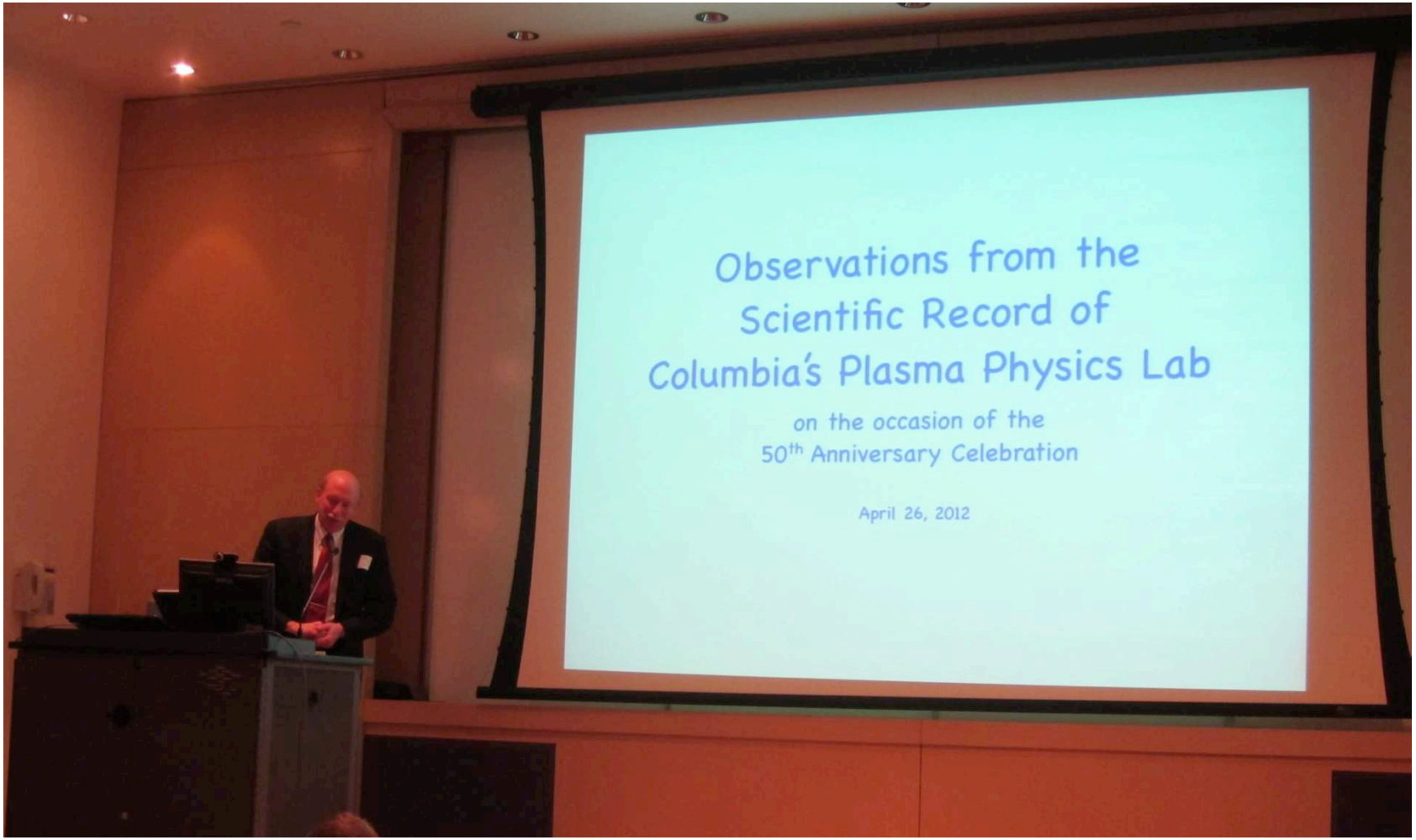

Plasma Physics Lab 50th Anniversary
Thursday, April 26, 2012

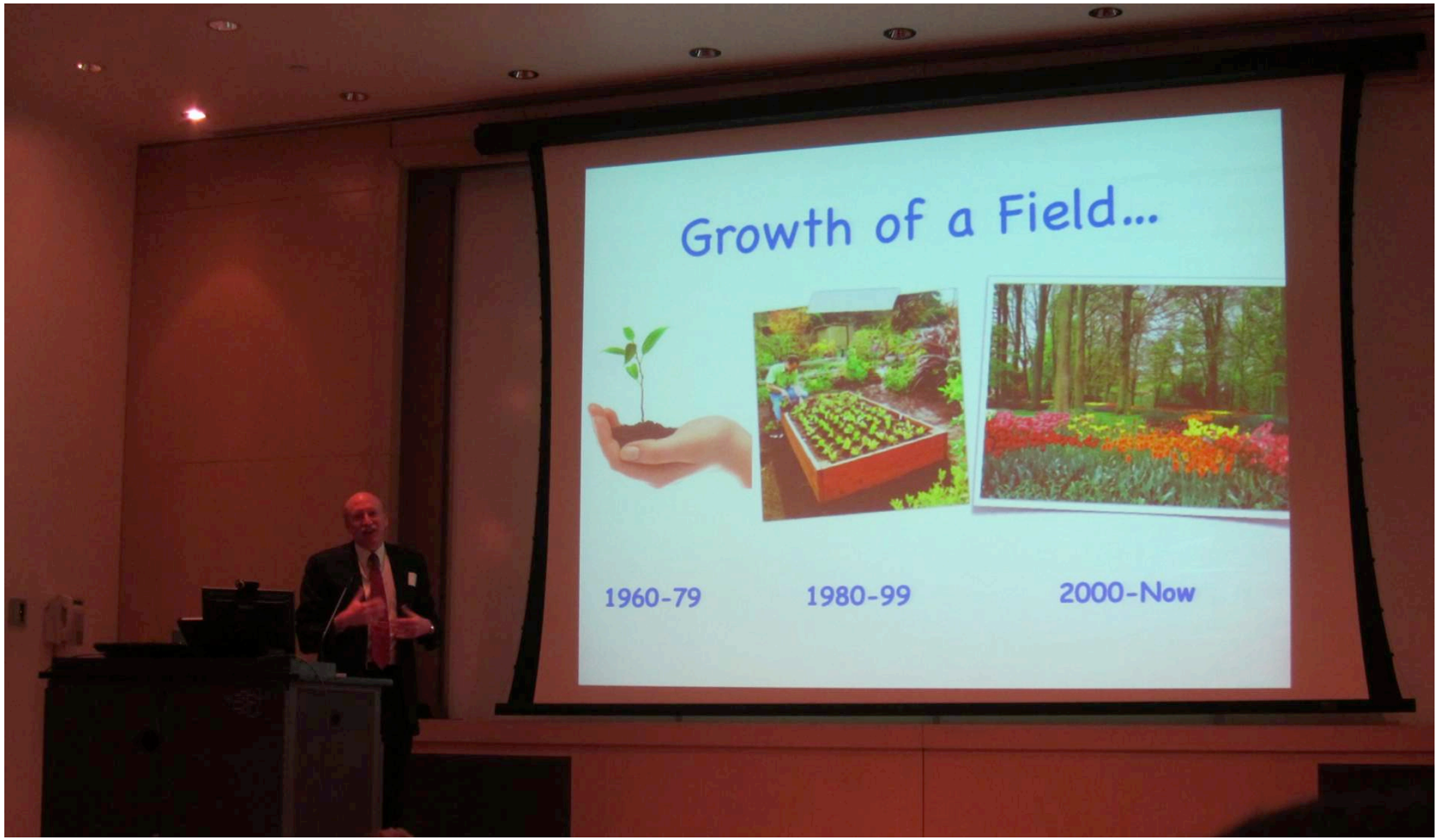

Plasma Physics Lab 50th Anniversary
Thursday, April 26, 2012


EXIT


EXIT


Columbia Plasma Physics Laboratory
50+ Years Young!
1960's: MHD Shock Tubes; Q-machine; Plasma Focus
1970's: Free Electron Laser; Columbia Linear Machine (CLM);
Lab Expansion ➜ Torus I & Torus II
1980's: Upgraded FEL; CLM; Torus II ➜ HBT;
SRX Design for Advanced Tokamak Physics
➜ TFTR Collaboration on AT Physics at PPPL


Observations from the
Scientific Record of
Columbia's Plasma Physics Lab
on the occasion of the
50th Anniversary Celebration
April 26, 2012

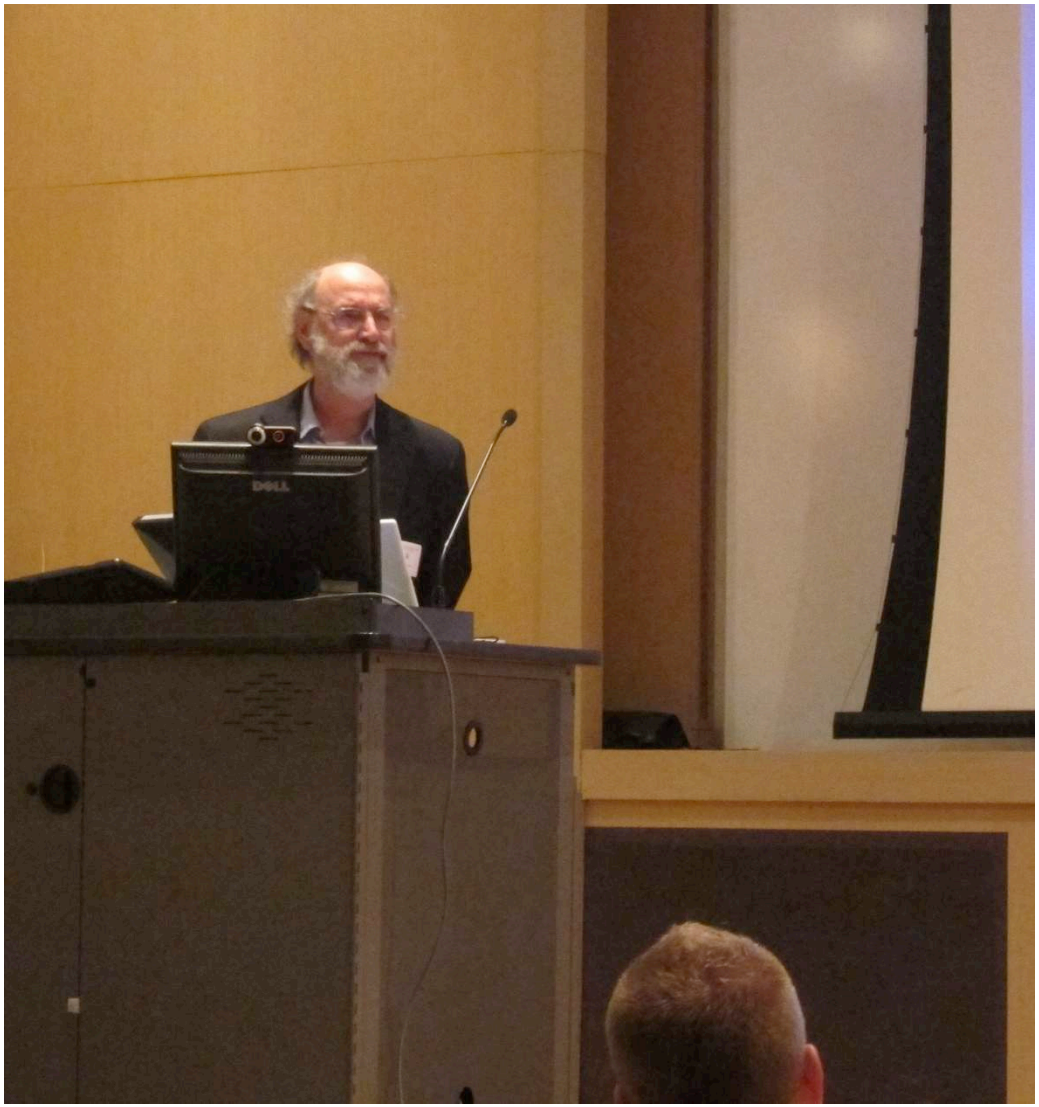

Growth of a Field...
1960-79
1980-99
2000-Now


DELL

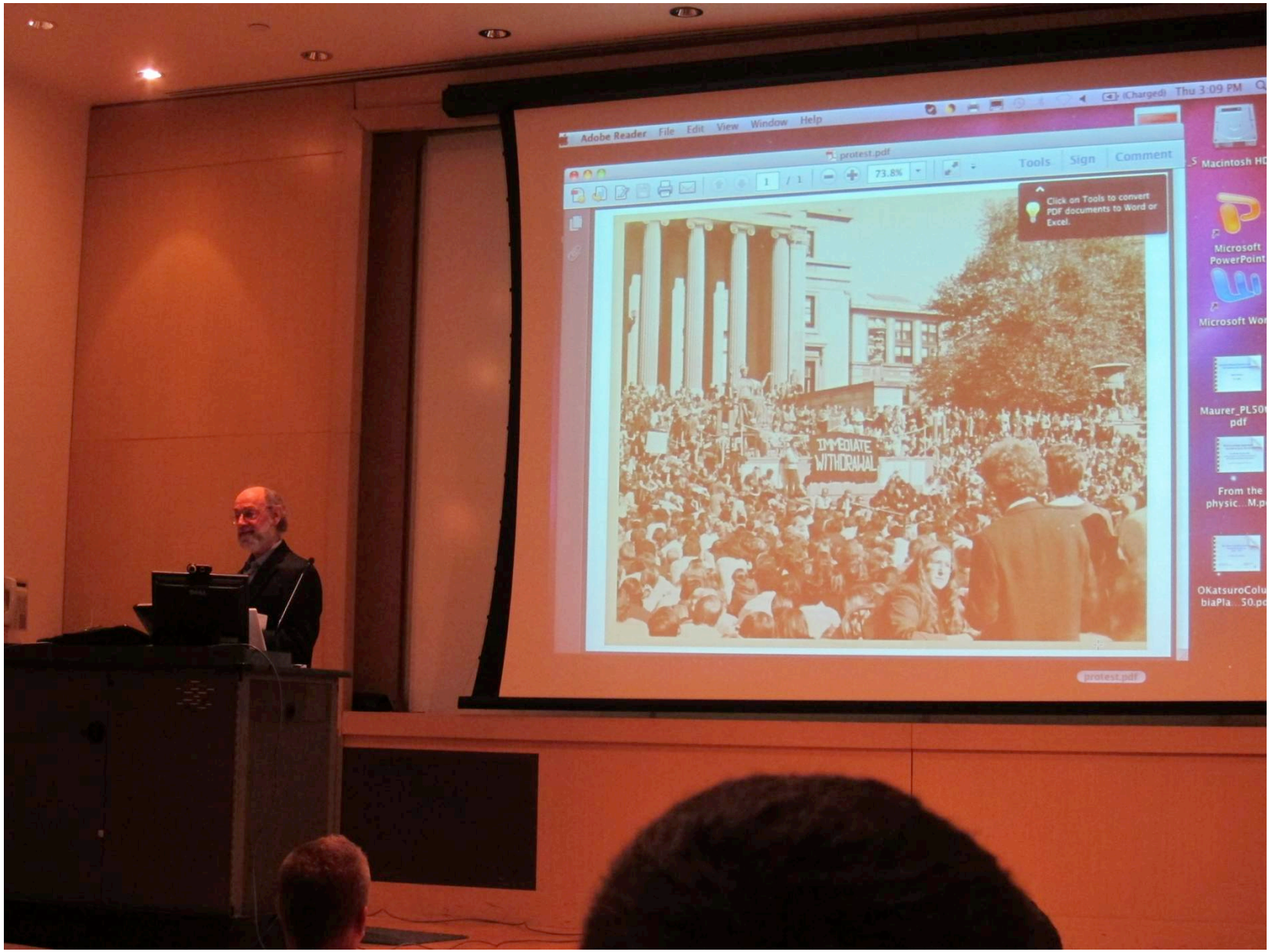

DELL


EXIT


EXIT


DELL


DELL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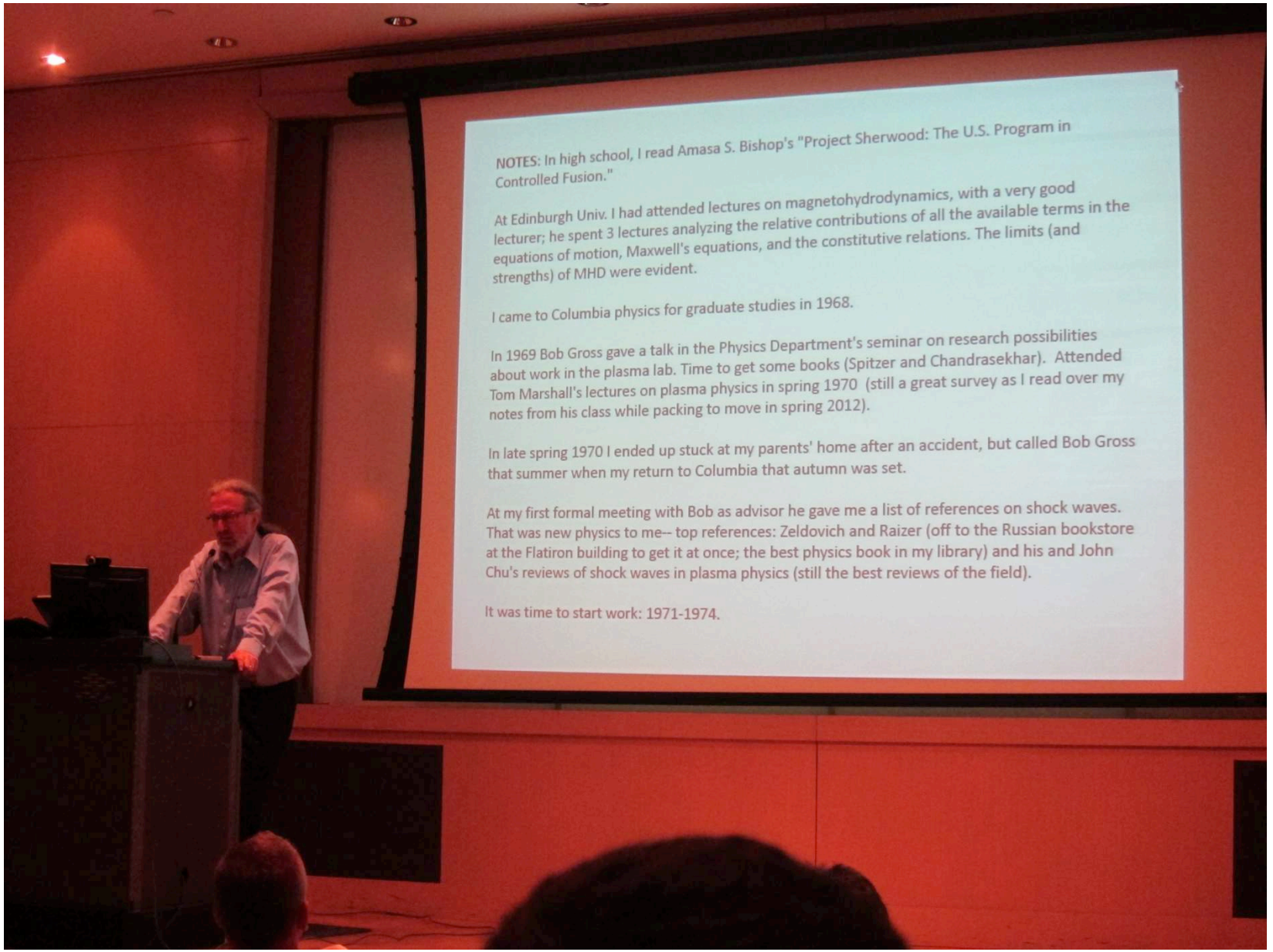
NOTES: In high school, I read Amasa S. Bishop's "Project Sherwood: The U.S. Program in Controlled Fusion."
At Edinburgh Univ. I had attended lectures on magnetohydrodynamics, with a very good lecturer; he spent 3 lectures analyzing the relative contributions of all the available terms in the equations of motion, Maxwell's equations, and the constitutive relations. The limits (and strengths) of MHD were evident.
I came to Columbia physics for graduate studies in 1968.
In 1969 Bob Gross gave a talk in the Physics Department's seminar on research possibilities about work in the plasma lab. Time to get some books (Spitzer and Chandrasekhar). Attended Tom Marshall's lectures on plasma physics in spring 1970 (still a great survey as I read over my notes from his class while packing to move in spring 2012).
In late spring 1970 I ended up stuck at my parents' home after an accident, but called Bob Gross that summer when my return to Columbia that autumn was set.
At my first formal meeting with Bob as advisor he gave me a list of references on shock waves. That was new physics to me-- top references: Zeldovich and Raizer (off to the Russian bookstore at the Flatiron building to get it at once; the best physics book in my library) and his and John Chu's reviews of shock waves in plasma physics (still the best reviews of the field).
It was time to start work: 1971-1974.


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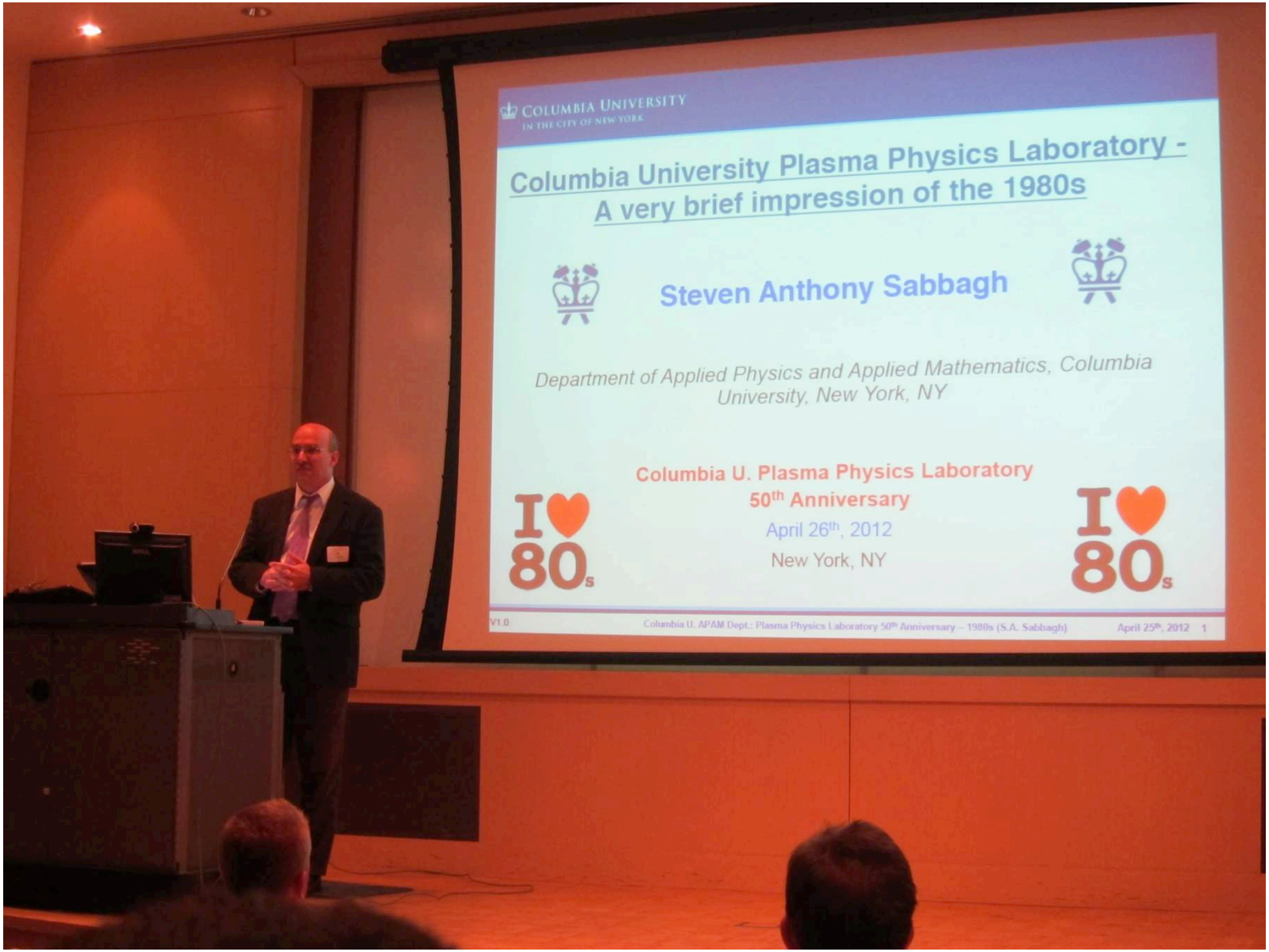
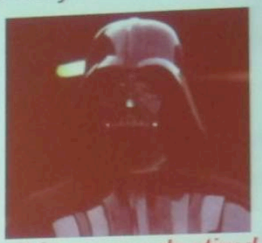

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK
Columbia University Plasma Physics Laboratory -
A very brief impression of the 1980s
Steven Anthony Sabbagh
Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY
Columbia U. Plasma Physics Laboratory
50th Anniversary
April 26th, 2012
New York, NY
I ♥ 80s
I ♥ 80s
V1.0
Columbia U. APAM Dept.: Plasma Physics Laboratory 50th Anniversary – 1980s (S.A. Sabbagh)
April 25th, 2012 1

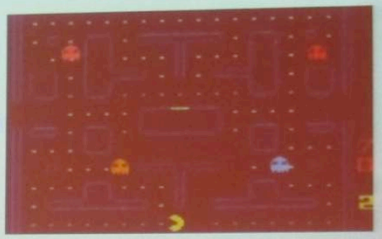
August 1980 - pre-Columbia Plasma Lab days (T-minus ~3.5 years…)

(yes, that dates me – now associated with Columbia 32 years …)

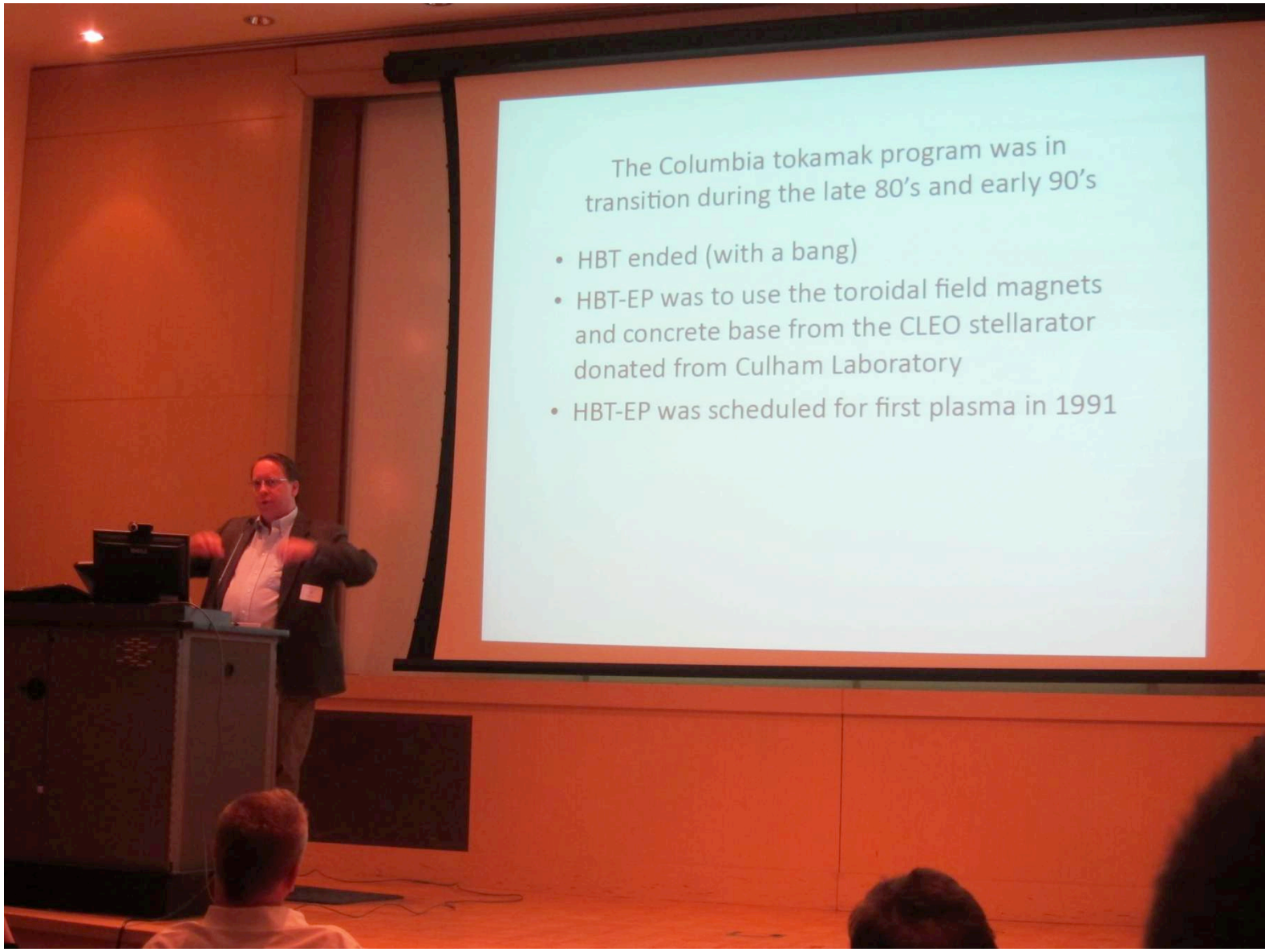


…it is…your destiny!

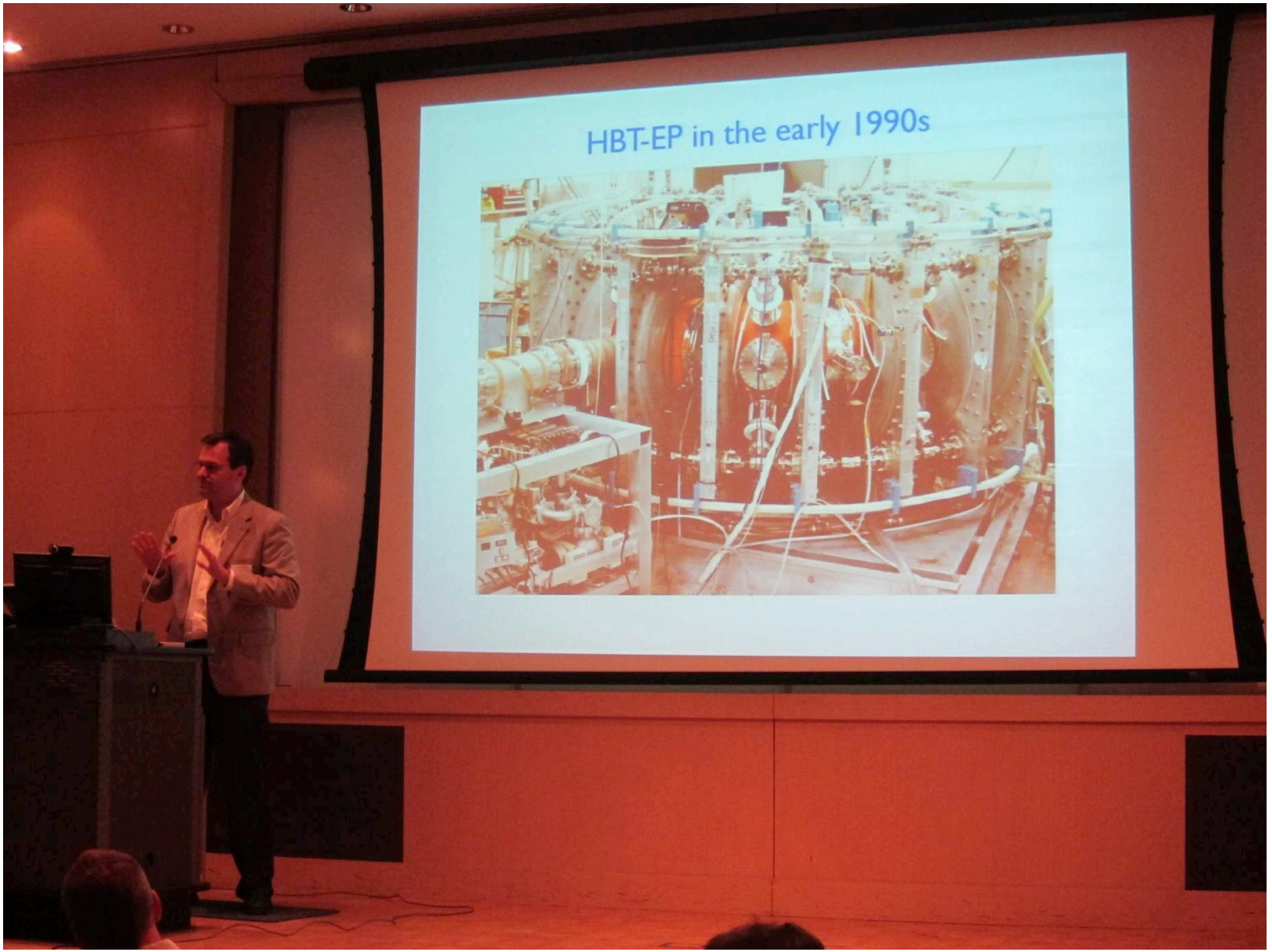
- 1980
  - Dean Vreeland at freshman orientation states 50% departure rate in 1st year
    - He didn't give statistics on # of people remaining 32 years or more. Puzzling…
  - Prof. Chu gives lecture at orientation, which basically sets my destiny….
  - Pac-Man video game invented; took 19 years for first person to ever finish it fully!
    - Finished level 255, at level 256, half the screen became jumbled (ahh - 8 bits!)
    - Solace that it took 10 less years to get Ph.D.

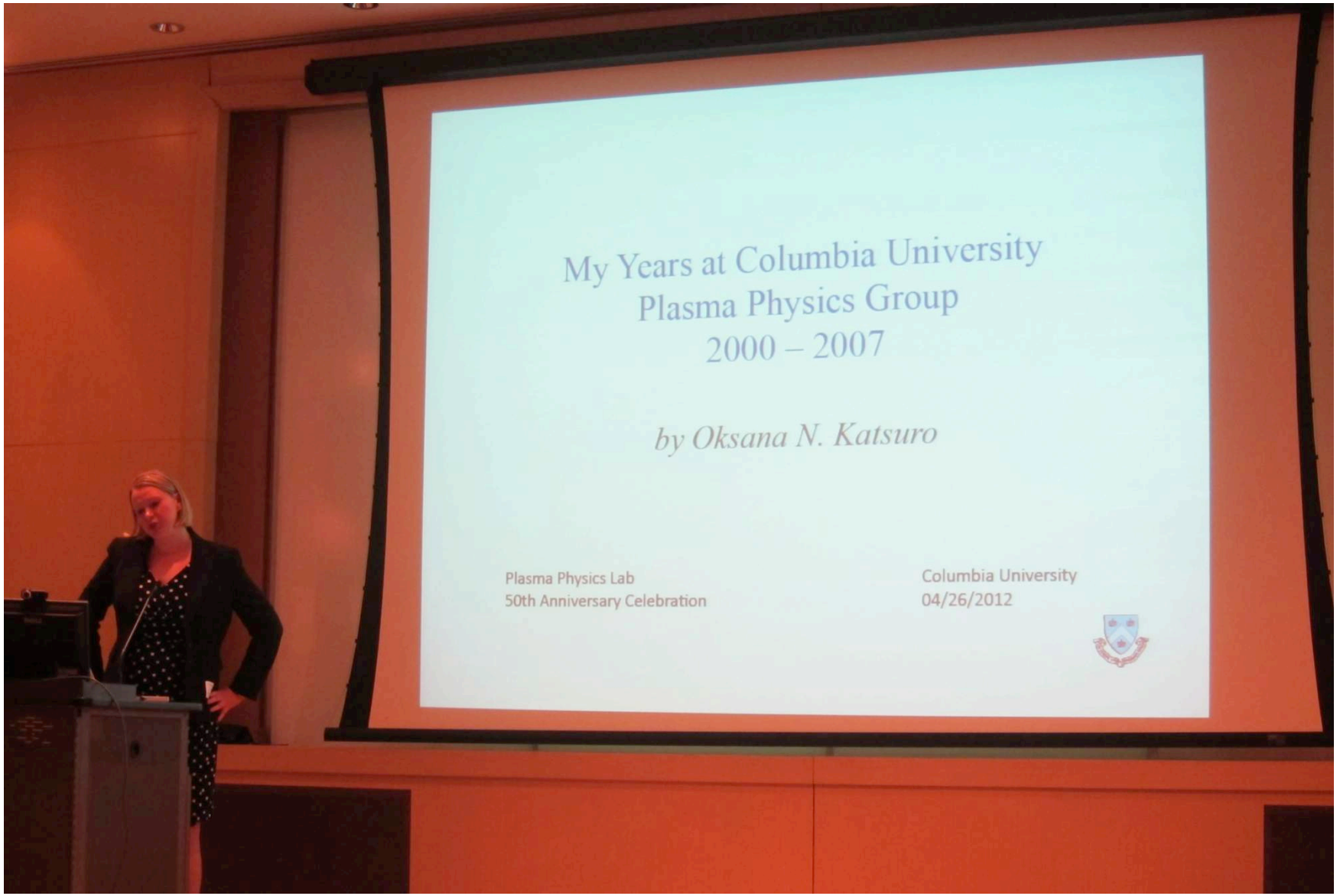


- 1984
  - The Macintosh propels us into the future, graduation propels me into the plasma lab
    - Developer's names were inscribed inside Mac

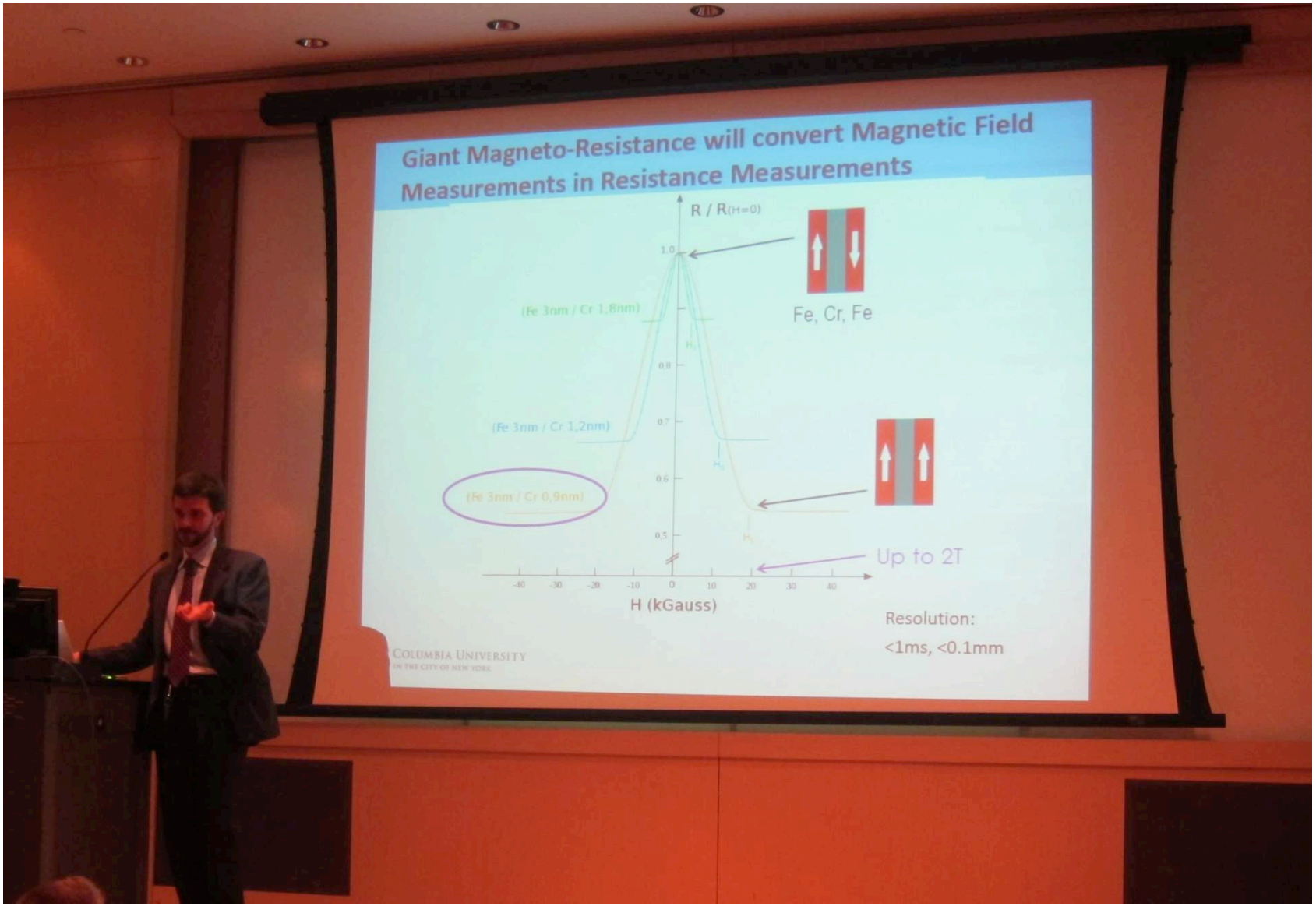

The Columbia tokamak program was in transition during the late 80's and early 90's
• HBT ended (with a bang)
• HBT-EP was to use the toroidal field magnets and concrete base from the CLEO stellarator donated from Culham Laboratory
• HBT-EP was scheduled for first plasma in 1991


Demolition and design (circa 1989)
NOTICE


HBT-EP in the early 1990s


My Years at Columbia University
Plasma Physics Group
2000 – 2007
by Oksana N. Katsuro
Plasma Physics Lab
50th Anniversary Celebration
Columbia University
04/26/2012


Fantasia ed Entusiasmo
Francesco Volpe
April 26, 2012
COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK


Giant Magneto-Resistance will convert Magnetic Field Measurements in Resistance Measurements
R / R(H=0)
1.0
0.8
0.7
0.6
0.5
(Fe 3nm / Cr 1,8nm)
(Fe 3nm / Cr 1,2nm)
(Fe 3nm / Cr 0,9nm)
Fe, Cr, Fe
Up to 2T
-40 -30 -20 -10 0 10 20 30 40
H (kGauss)
Resolution:
<1ms, <0.1mm
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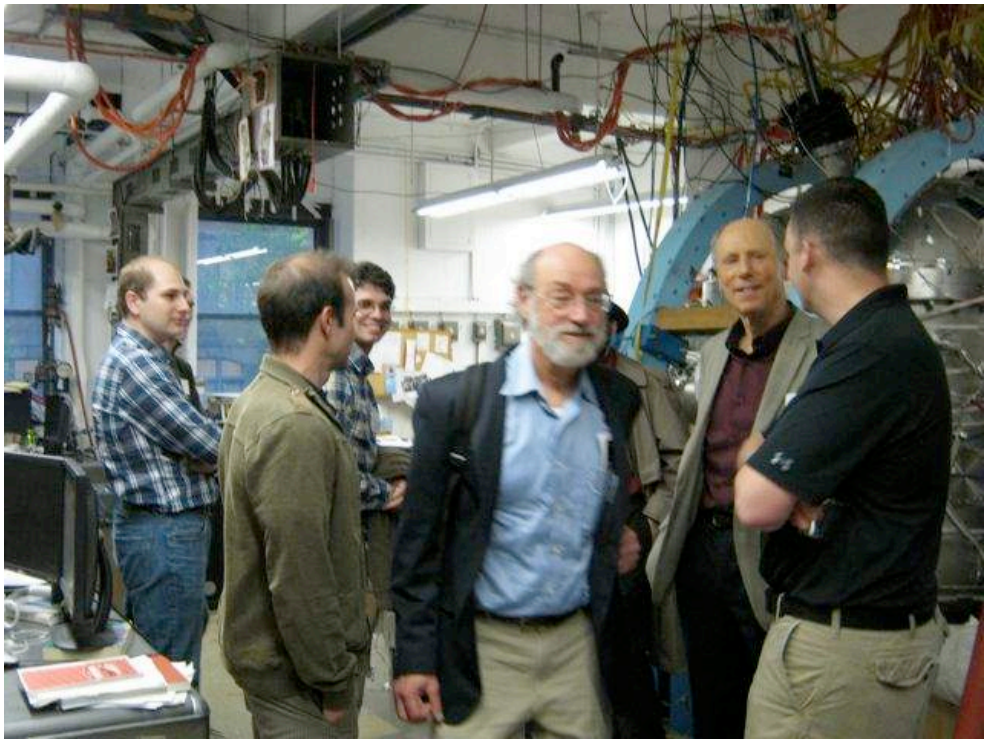
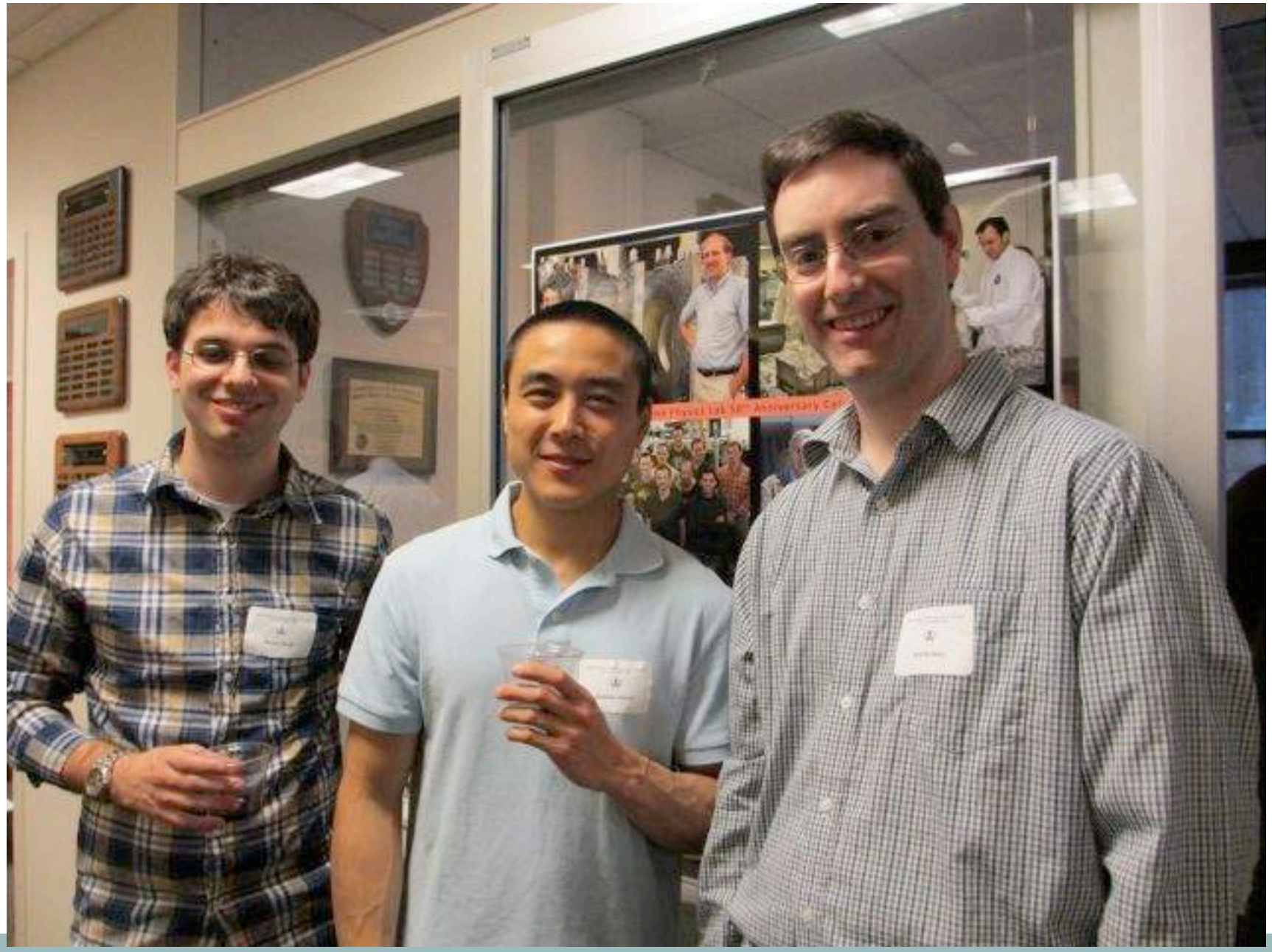
DELL

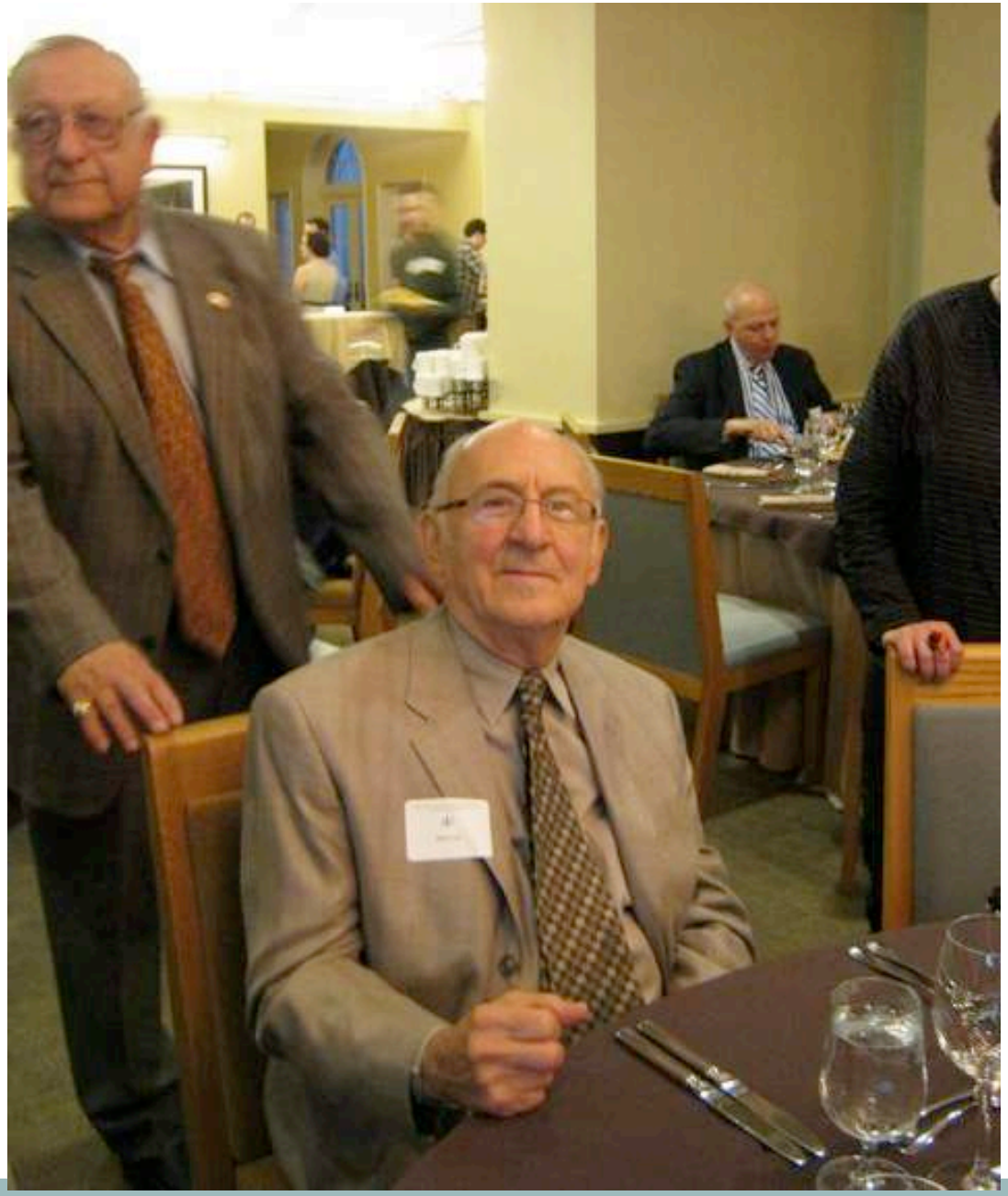

EXIT


Fusion
FIRE
BLANKET


MODEL S4T10-S10
2 T





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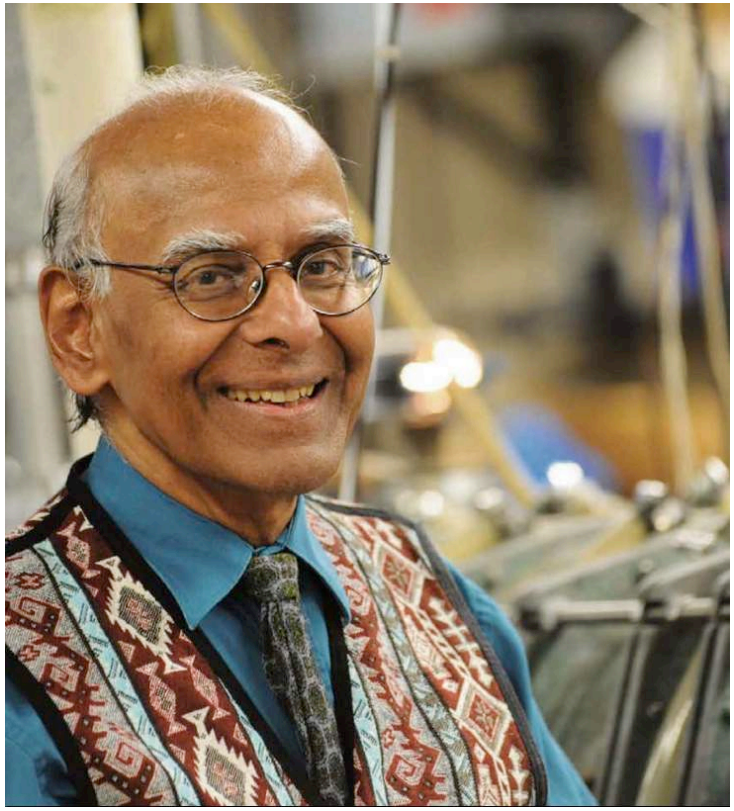

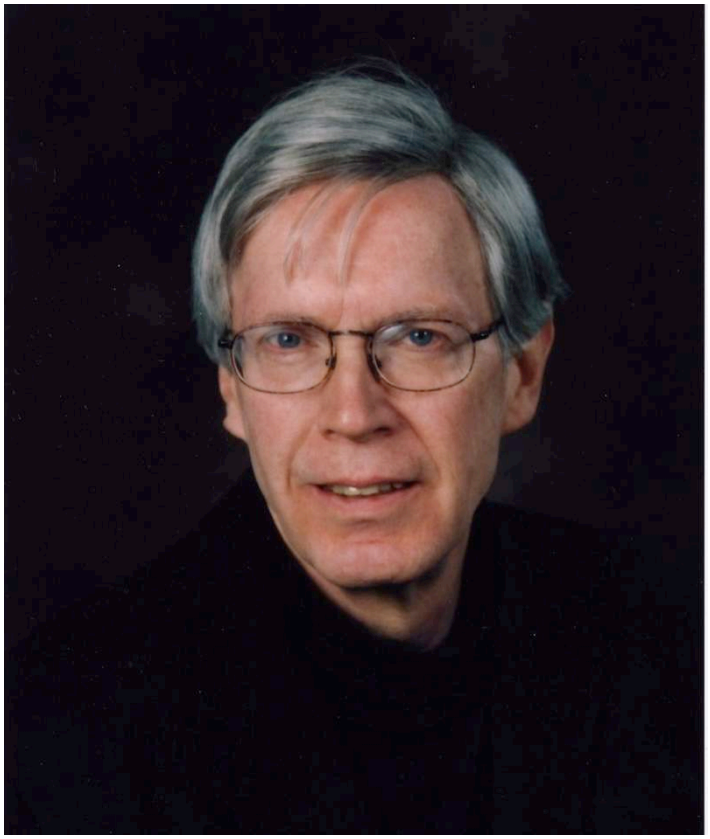

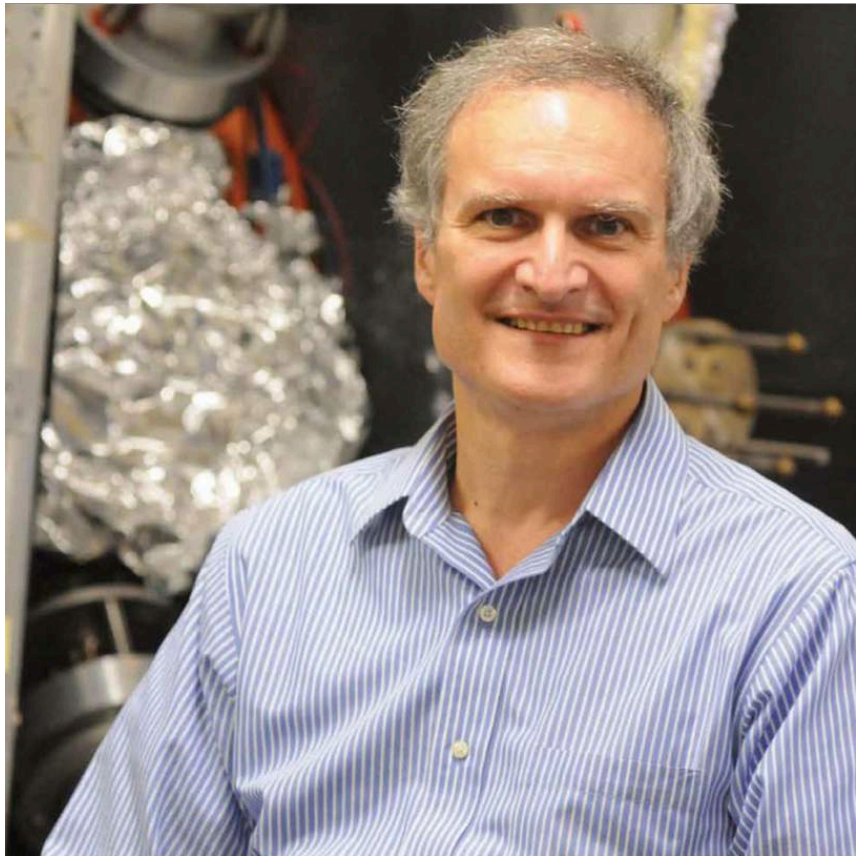


PLASMA
POWER


MAN FAIR