THE PLASMA LABORATORY
Left to right: Professors Marshall, Schlesinger, Turkott, Sagdeev (visiting from Russia), Gross.
1965-1966
1965-1966
1966

Gunther
Tann

June
Clearman

Werner
Harff

Jack
Dorning

[Image of people in a group with names written beneath]
1968

Prof. Chu
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

John Wallace

Michael Zastar

Edward Zima

Jeannette Rainey / Secretary

Mina Karp / Administrative Assistant

Controversial TRIGA
1971

Nuclear Science and Engineering

Professor G. Domoto
Professor V. Castelli

John Kittel
Professor C. Chu

David C. Hom
Sheldon Meth
Pantelis Pechlivanides
1972

Robert A. Gross
1975

Professor John R. Dunning

Professor Herbert Goldstein

Professor Leon J. Ledofsky

Professor Edward Melkonian

Professor William W. Havens, Jr.

"Do you still accept this belated lab report Sir?"
1980-1985
1980

Leon J. Lidofsky

Thomas C. Marshall

Arthur S. Nowick

Amiya K. Sen

Malvin C. Teich

Edward Melkonian

Amir N. Nahavandi

Gerald A. Navratil

S. Perry Schlesinger
1981
Clockwise from below: Amiya K. Sen, Herbert Goldstein, Malvin Ruderman, Edward Melkonian, Henry M. Foley, Chia-Kun Chu.

1984

Gerald A. Navratil

Chia Kun Chu, Chairman

Thomas C. Marshall

Michael Tabor

Edward Melkonian
1980-1985
1980-1985
1980-1985
1980-1985
1987

Professor Lidiiskyy counsels undergraduates in the art of Ironman programming. (top)

(above) A sign of the second floor.

Tomm Gellhorn contemplates the acceleration necessary for an electron to penetrate the wall of the Moth building.

Quantum anyone? (left)

Alfredo Ceballos searches the help wanted section for an applied physicist position. It is listed right after gene splitter. Fred.

AFNE Department Faculty: (standing left to right) Michael Tabor, Thomas Marshall, Amitava Bhattacharjee, C.K. Chu (CHAIRMAN), Michael Masel, Aliessa Sadaghian, (seated left to right) S. Perry Schäfer, Irving Herrman, Gerald Nastasi, Herbert Goldberg. (missing) Leon Lidiiskyy
1988

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

So, does anyone know how to work this gadget?

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.

Department Staff: (seated, left to right) Lois Winter, JoAnn Wexler; (standing, left to right) Marlene Arko, Lydia Argote.
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

Michael Mauei

Michael Tabor

Asitava Bhattacharjee

Marlene Abo

C. K. Chu

Thomas Marshall

JoAnne Wines, Lois Winter
1991-1993
1991-1993
make it come true. The 
90's HyperAnimator lets 
or scan in faces and 
poses, whatever you want 
to do, the text is automati-
calized to speech syn-
thesized with the lip move-
ments. Mom's voice won't 
look like hers, however, un-
less you can get her to digitize 
your disk. If you type in her words, she'll 
look distinctly computerish. If 
I have time to draw or 
type, you can use the sta-
tion characters provided by 
Star coach's best ad-
visor, however, is proba-
bly a talking head star-
ning Disney's new version of 
Smart-Minded Professor, 
a Sunday nights as part 
of "World of Disney" TV so-
ftware developers Jay 
and Harry Anderson. 
Albert play the pro-
editor's sidekicks. 
Star has also added the 
creator's audio feature 
mail package called 
Mail, which lets your 
anniversary cards deli-
tes in person. 
For further infor-
mal BrightStar Tech-
ian Bellevue, Washing-
805-985-5446. 
Garrison

**Macworld News**

- **Beyond HyperCard** Two compa-
ines prepare more powerful Hyper-
Card 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.

- **Tokamak** Columbia University 
uses a Mac program in fusion 
research.

Plus, Jasmine's new BackPac with 
modern support, SE/30 color card, medical imaging, C++ and a new MPW, 
and more.
1991-1993
1993-1996
HBT RF Assembly
2000-2001
Temperature Driven Interchange Modes
Laboratory Magnetic Dipole

Levitt, B. Shaw, M.E. Mauel

Observation of New Modes
- New mode observed upon application of magnetic flux.
- Precession of direction of induced C(T) and C(T) modes.
- Frequency of mode modified by varying applied field.

Is this the rotationally driven interchange instability???
2011 NSF/DOE Fund Laboratory Magnetosphere Collaboration
Plasma Physics Lab 50th Anniversary
Thursday, April 26, 2012
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...

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: Zel'dovich 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.
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
August 1980 - pre-Columbia Plasma Lab days
(T-minus ~3.5 years...)
(yes, that dates me – now associated with Columbia 32 years ...)

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)
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
Giant Magneto-Resistance will convert Magnetic Field Measurements in Resistance Measurements

- Fe, Cr, Fe
- (Fe 3nm / Cr 1.8nm)
- (Fe 3nm / Cr 1.2nm)
- (Fe 3nm / Cr 0.8nm)

Up to 2T

Resolution:
<1ms, <0.1mm