Celebrating the life and legacy of

Chia-Kun "John" Chu

1927-2023

Fu Foundation Professor Emeritus of
Applied Mathematics at Columbia Engineering

Department of Applied Physics & Applied Mathematics
Fu Foundation School of Engineering & Applied Science
Columbia University

Applied Physics & Applied Mathematics (APAM) Department
Fu Foundation School of Engineering & Applied Science (SEAS)
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Mail Code: 4701
New York, NY 10027

Chia-Kun (John) Chu, the Fu Foundation Professor *Emeritus* of Applied Mathematics at Columbia Engineering, was a pioneer in computational mathematics. His work in fluid dynamics, magnetohydrodynamics, and shock waves garnered him international recognition while his zeal for his life's work prompted him to work tirelessly to create a home for applied mathematics at Columbia University. He is one of only seven mathematicians to receive an Honorary Doctor of Science Degree in Columbia's 252-year history.

Professor Chu was born in Shanghai in 1927 and was the son of parents with various degrees of Western education - his father received an MBA from NYU in 1929 and his mother spoke fluent English. He graduated in 1944 from St. John's University High School, where the curriculum was half Chinese and half English. He was accepted at St. John's University but decided to take the entrance examination for Chiaotung (now Jiaotong) University, the national science and engineering university.

"I didn't think I had much of a chance, but I got in," he said. After doing extremely well in his university studies, Chu came to the United States for graduate work. He received his master's degree in 1950 from Cornell and accepted a job as an engineer at General Electric. "I was happy at GE," he said, "and was all set in a special advanced program for engineers. And then, in 1953, a major incident occurred."

That incident was a telephone call from Professor Chu's advisor at Cornell, who had moved to Stevens Institute of Technology, offering him a position as an assistant professor there. The selling point was that Professor Chu would be near the Courant Institute of Mathematical Sciences. "On Friday, I interviewed for and accepted the position at Stevens and, on the following Monday, I interviewed with Richard Courant. He asked me what I needed for a salary and I said, 'I suppose if they are offering me an assistant professorship, my answer to you should be zero.' I was accepted as a Ph.D. student and it changed my life."

In 1959, he became the first Chinese student to receive a Ph.D. from Courant Institute. He taught at Pratt Institute and NYU Engineering before joining the Columbia Engineering and Applied Science faculty in 1963 as a visiting research scientist in the plasma physics laboratory. He was granted tenure at Columbia and was named a full professor in 1968. He was one of the original nine members of the faculty of the Department of Applied Physics and Nuclear Engineering; he served as the chair of the Plasma Physics Committee from 1966-1967, 1970-1971, and 1974-1977; and was chair of the Applied Mathematics Committee from 1978-2003. He also served as Chair of the Department of Applied Physics and Nuclear Engineering from 1982-1983, 1985-1988, and 1995-1997.

In 1999, he was named Fu Foundation Professor of Applied Mathematics. As a theoretician working with plasma physics, he was delighted when then dean Peter Likins asked him to form a new program in applied mathematics as a successor to the Mathematical Methods program already functioning well under Prof. Morton Friedman. Its first home was in Applied Physics and, in 1997, the name of the department was changed to Applied Physics and Applied Mathematics, fully recognizing the program.

Professor Chu was key in promoting the endowment that established the Fu Foundation School of Engineering and Applied Science. This endowment spurred the expansion of the School, and its rise in prominence.

Professor Chu was named a John Simon Guggenheim Foundation Fellow from 1971-1972, a Fellow of the American Physical Society in 1971, and Fellow of the Japan Society for the Promotion of Science in 1979. He was listed in Who's Who in America in 1983 and was a Sherman Fairchild Distinguished Scholar at Caltech in 1984. He was named an Advisory Professor at Shanghai Jiao Tong University in 1985, an Honorary Research Professor at the Institute of Mechanics from the Academia Sinica in 1988, the Wei Lun Foundation Lecturer at the Chinese University of Hong Kong in 1991, and an Honorary Professor of Mechanical Engineering at Hong Kong University in 1993. He received Columbia University's Great Teacher Award in 1985.

Professor Chu, whose advice and guidance helped hundreds of students for more than four decades, retired in 2003 but he continued to maintain contact with most of his 24 Ph.D. students and many of his former undergraduate students. He was awarded an Honorary Doctor of Science Degree from Columbia University in 2006 and was recognized by the Asian Columbia Alumni Association (ACAA) at their 20th Anniversary Gala in 2016.

In a letter nominating Professor Chu for an honorary degree, Professor Michael Mauel, former APAM Department Chair, wrote:

"Chu is one of the great pioneers of computational mathematics and he is the visionary leader for applied mathematics within Columbia University. His work in fluid dynamics, magnetohydrodynamics, and shock waves is internationally recognized. He coined the term "computational fluid dynamics" and pioneered numerical and mathematical methods for understanding the propagation of shock waves that occur in many different physical circumstances. These contributions have made a lasting and profound impact to the development of applied mathematics."

Professor Chu has also been the spiritual force driving the growth of applied mathematics at Columbia University and a beloved and founding leader of the Department of Applied Physics and Applied Mathematics. With a warm and engaging personality, Chu inspired his colleagues to interdisciplinarity, departmental harmony, and devotion to the University. By way of personal example in both teaching and service, he has been pivotal to hundreds of undergraduate and graduate students, and he has helped to secure the lasting success of applied mathematics within the Fu Foundation School of Engineering and Applied Science."

Career Timeline

General Electric Company

Engineer, 1950-1953

Stevens Institute of Technology

Assistant Professor, 1953-1957

Pratt Institute

Associate Professor, 1957-1959

Courant Institute, NYU

Research Assistant, 1956-1958

Research Associate, 1958-1959

New York University

Associate Professor, 1959-1963

Columbia University

Visiting Research Associate, 1963-1965

Associate Professor, 1965-1968

Professor, 1968-1992

Chairman, Plasma Physics Committee, 1966-67, 1970-71, 1974-77

Chairman, Applied Mathematics Committee, 1978-2003

Chairman, Department of Applied Physics and Nuclear Engineering, 1982-83, 1985-88, 1995-1997

Resident Professor, Wallach Hall, 1985-89

Fu Foundation Professor of Applied Mathematics, 1992

Fu Foundation Professor of Applied Mathematics *Emeritus*, 2003

Honors & Awards

John Simon Guggenheim Foundation Fellow, 1971-72

Senior NSF Fellow (awarded and declined), 1971-72

Fellow, American Physical Society, 1971-present

Fellow, Japan Society Promotion of Science, 1979

Sherman Fairchild Distinguished Scholar, Caltech, 1984

Who's Who in America, 1983-present

Columbia University Great Teacher Award, 1985

Shanghai Jiao Tong University, Advisory Professor, 1985-present

Academia Sinica, Inst. of Mechanics, Honorary Res. Prof., 1988-present

Wei Lun Foundation Lecturer, Chinese U. of Hong Kong, 1991

Hong Kong University, Honorary Professor of Mech. Eng., 1993

Honorary Doctor of Science Degree, Columbia University, 2006

Professional Society Memberships / Foundations / Activities

7th Symposium on Plasma Simulation, Co-chairman, 1975

AAAS

AIAA Professional Development Course on Computation, Director

AIAA Journal, Assoc. Ed., 1966-68

American Physical Society, fellow

American University of Paris, Trustee, from 1999

Chinese U of Hong Kong, External examiner, 2000-2003

Chubb Foundation, trustee; chairman of board

Committee on Applied Mathematics, 1983-1986

Fluid Dynamics, 1970

Fluid Dynamics Division, Exec Committee, 1975

Fu Foundation, Executive Secretary

Fusion Theory Annual Meetings, Exec Committee, 1978-80

John Simon Guggenheim Foundation, fellow

Physics of Fluids, Assoc. Ed., 1973-75

Plasma Physics Division, Exec Committee, 1982-83

P.Y. Chou Foundation, trustee

Rutgers University, Trustee, from 1999

San Siao Corporation, board of directors, from 1995

Shanghai Commercial Bank, Hong Kong, board of directors

Sigma Xi

Society of Industrial and Applied Mathematics

University Fusion Association, Exec Committee, 1983-1985

University Grants Committee of Hong Kong, Reviewer, from1999

Visiting Professorships

Cornell University, Grad. School Aero. Eng., summer 1961

Univ. of Strathclyde, Glasgow, Math. Dept., summer 1966

Stanford University, Institute Plasma Studies, summer 1968

University of Oxford, Math. Inst., fall term 1971

University of Uppsala, Dept. Computer Sci., spring term 1972

University of Paris XI, Dept. of Math., summer 1974

University of Paris VI, Dept. of Mechanics, summer 1977

University of Nagoya, Inst. Plasma Physics, summer 1979

Shanghai Jiao-Tong University, summer 1979

University of Wisconsin, Math. Res. Center, summer 1981

Academia Sinica, Inst. of Mechanics, Peking, summer 1982.

National Tsing Hua University, Hsinchu, Taiwan, January 1985

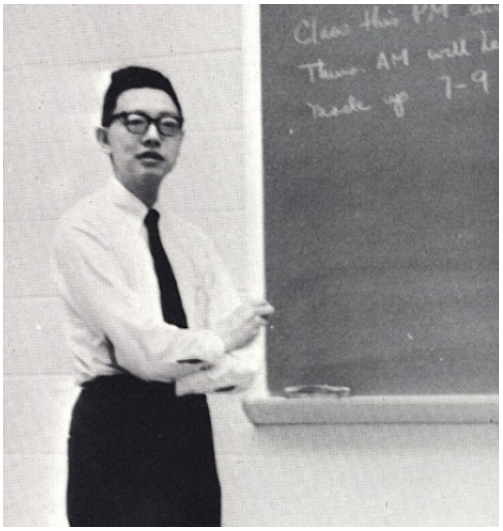
Univ of Calif at Los Angeles, Mathematics, 1989-90

Hong Kong University of Science and Technology, spring 1993

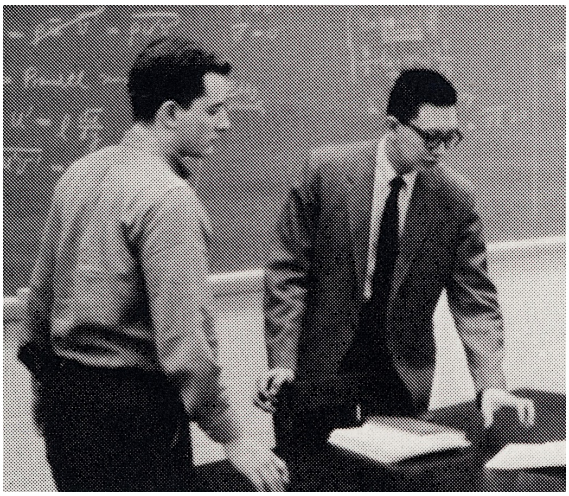
Chinese University of Hong Kong, Ho SinHeng Visiting Professor, 1994 fall

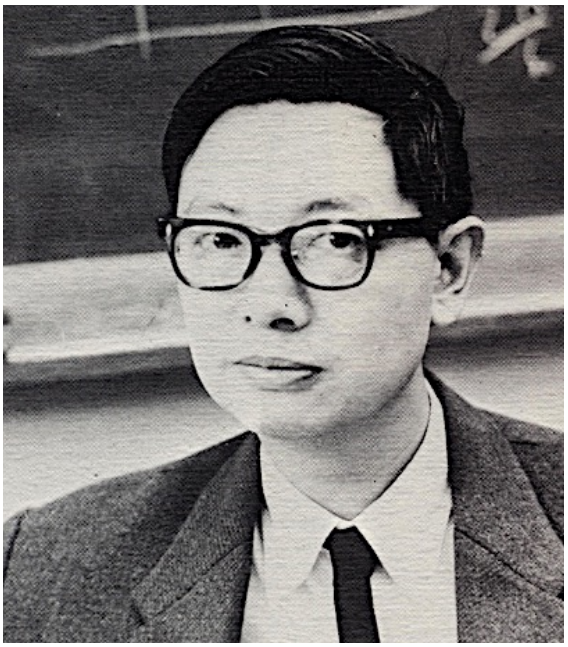
1961

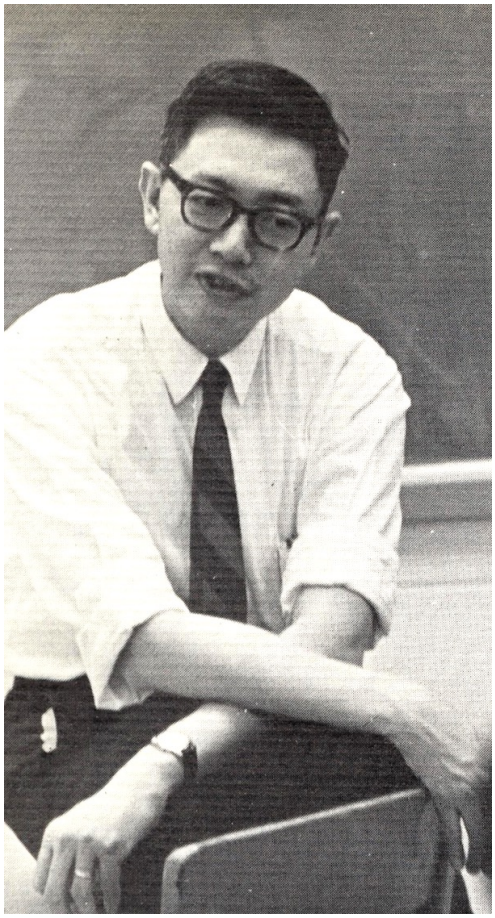
Founding faculty, including C.K. (John) Chu and Robert Gross, established the Plasma Physics Laboratory, beginning a long & prominent tradition at the forefront of high-temperature & fusion plasmas aided by a major expansion of APAM's fusion efforts in 1975.



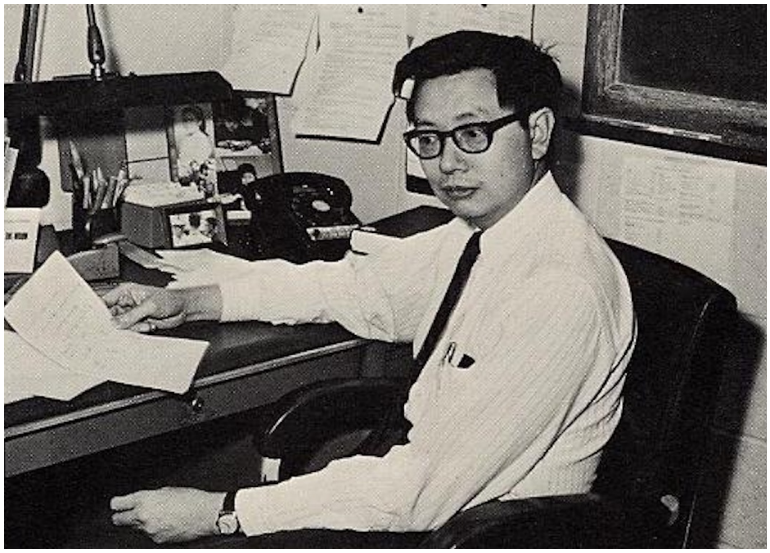
1966-1967



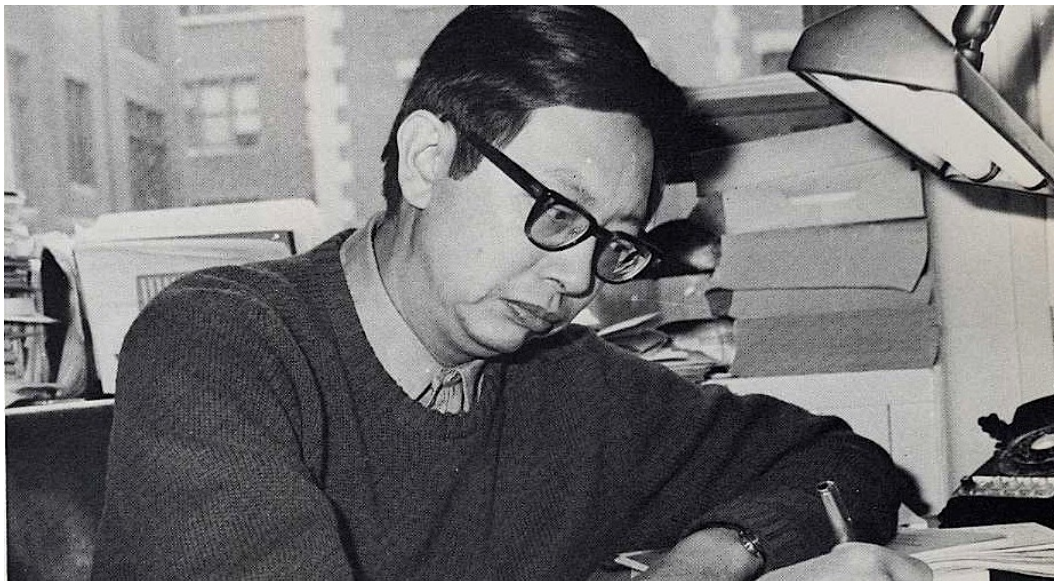




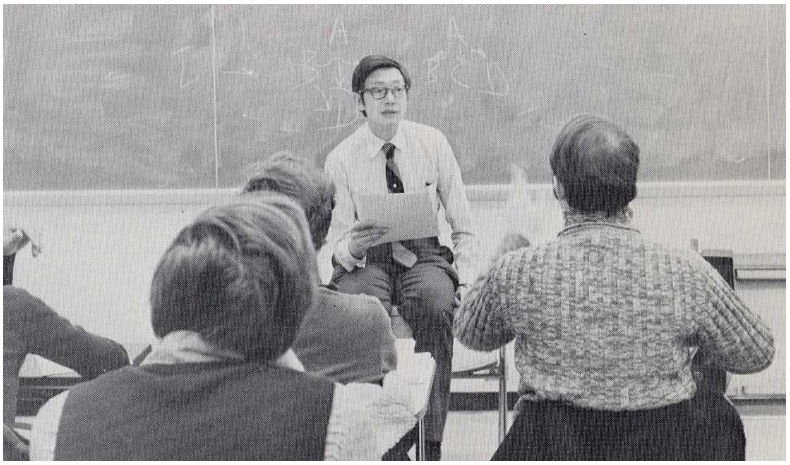
1968-
1969



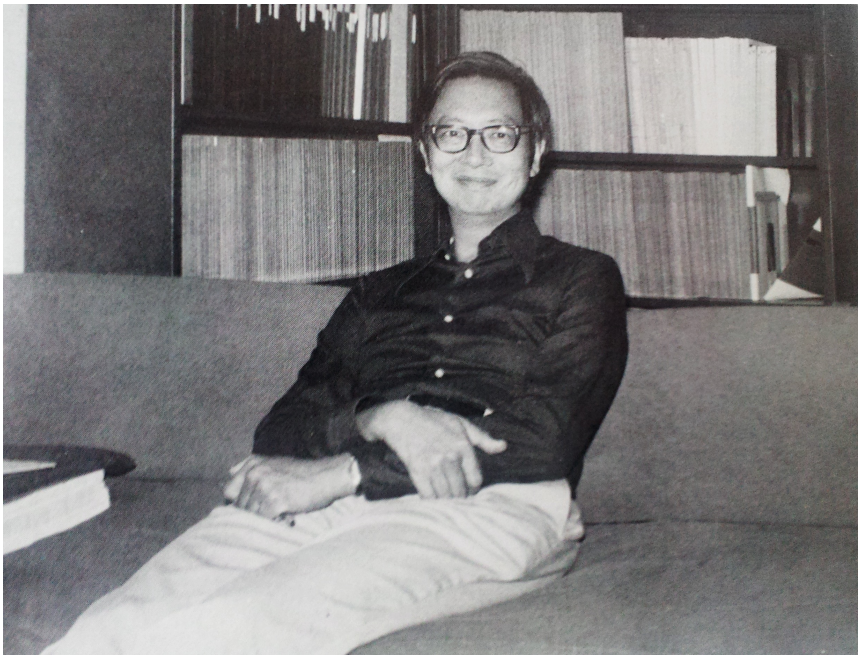
1970-1971



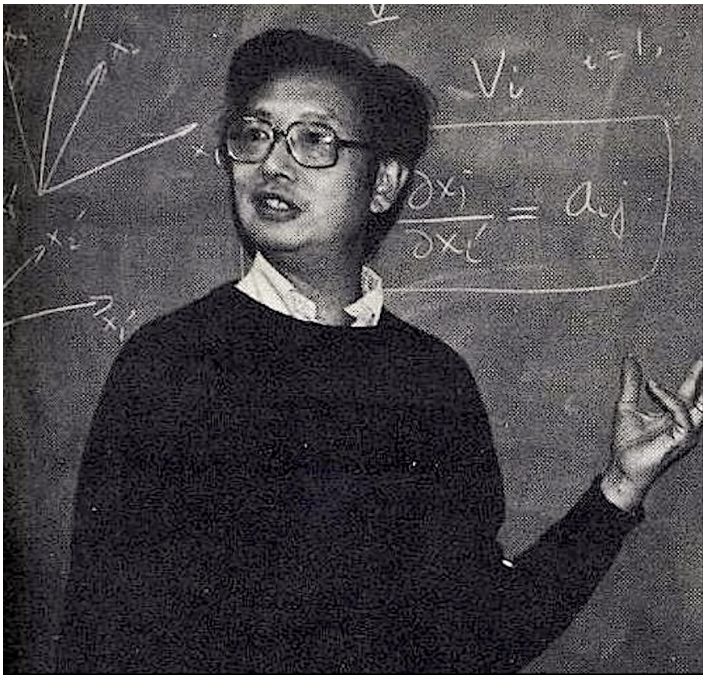
1972



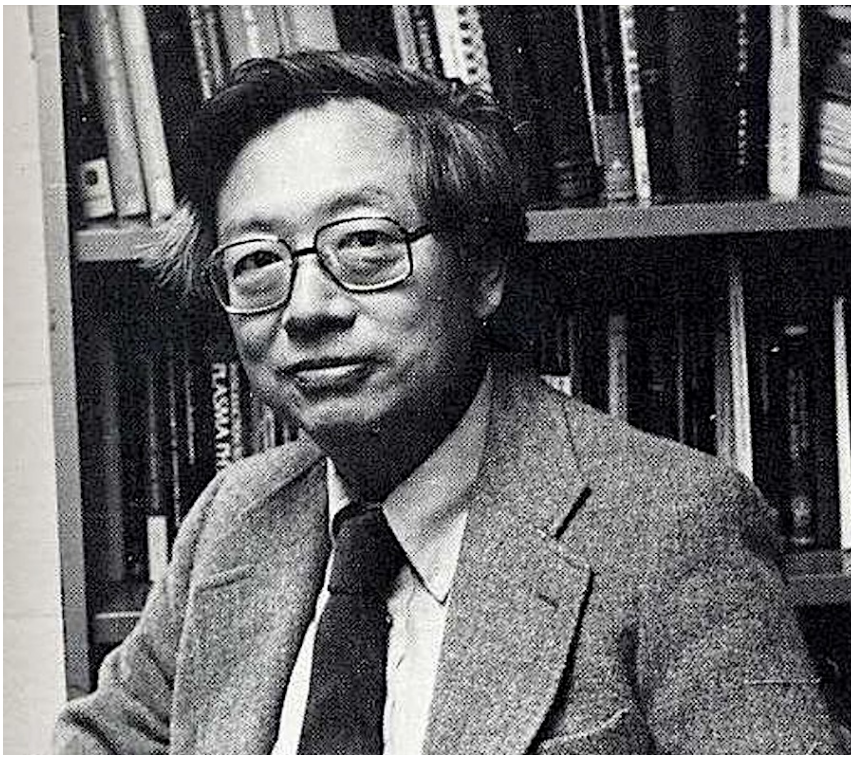
1975

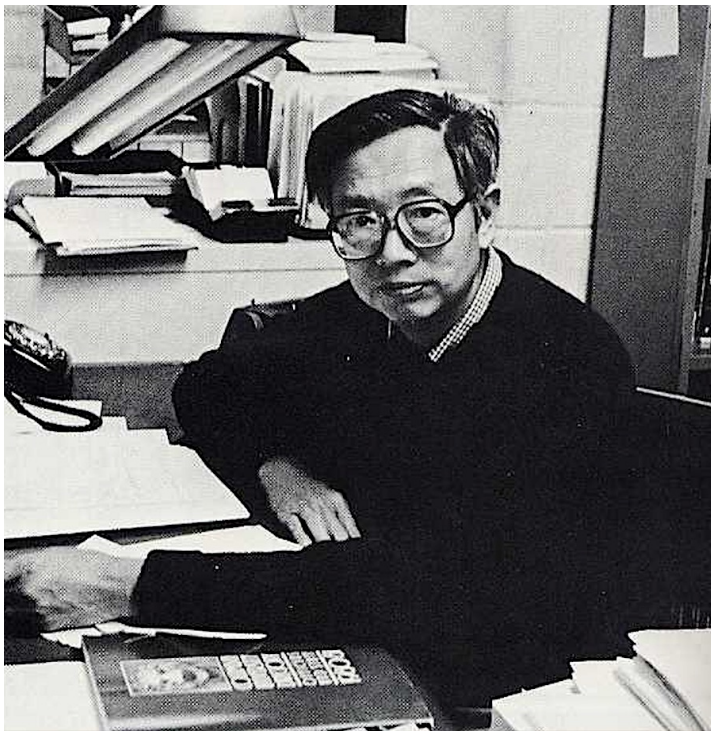


1976

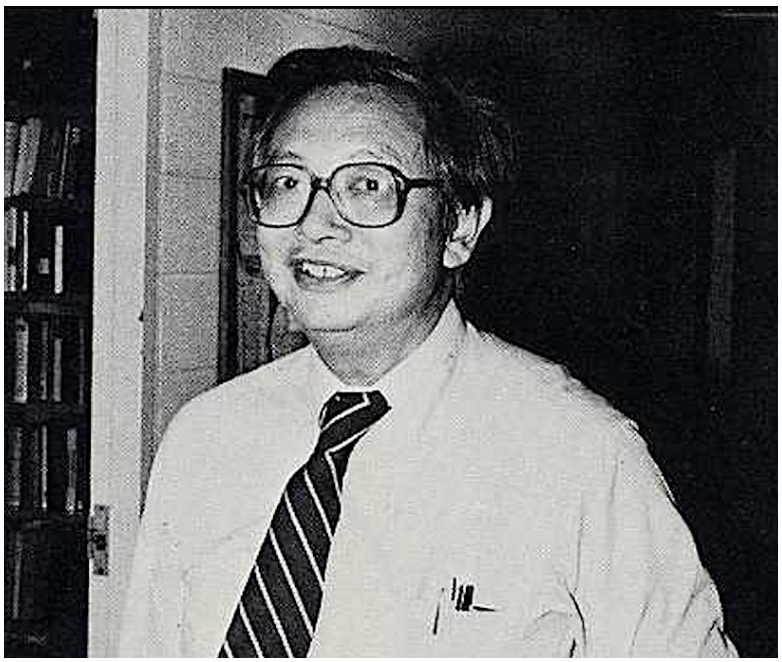


1980 -1981

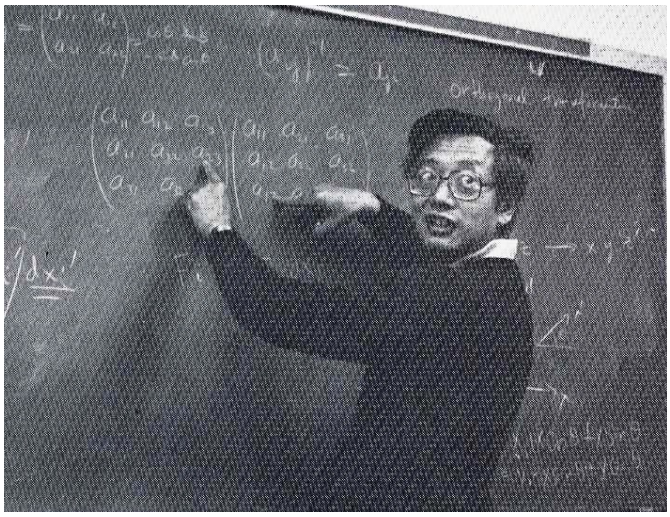




1983-1984

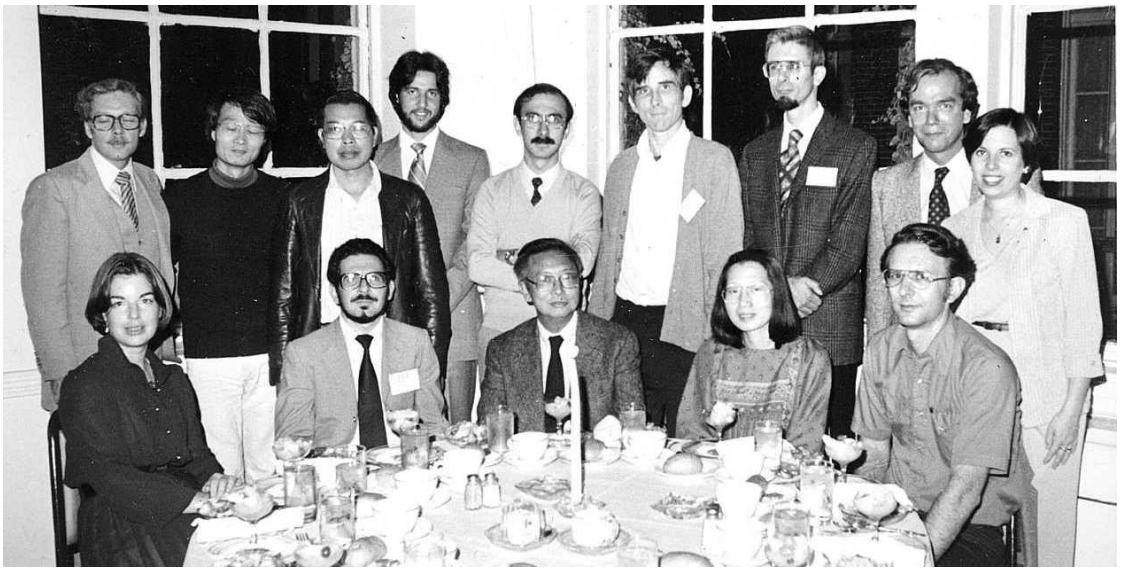


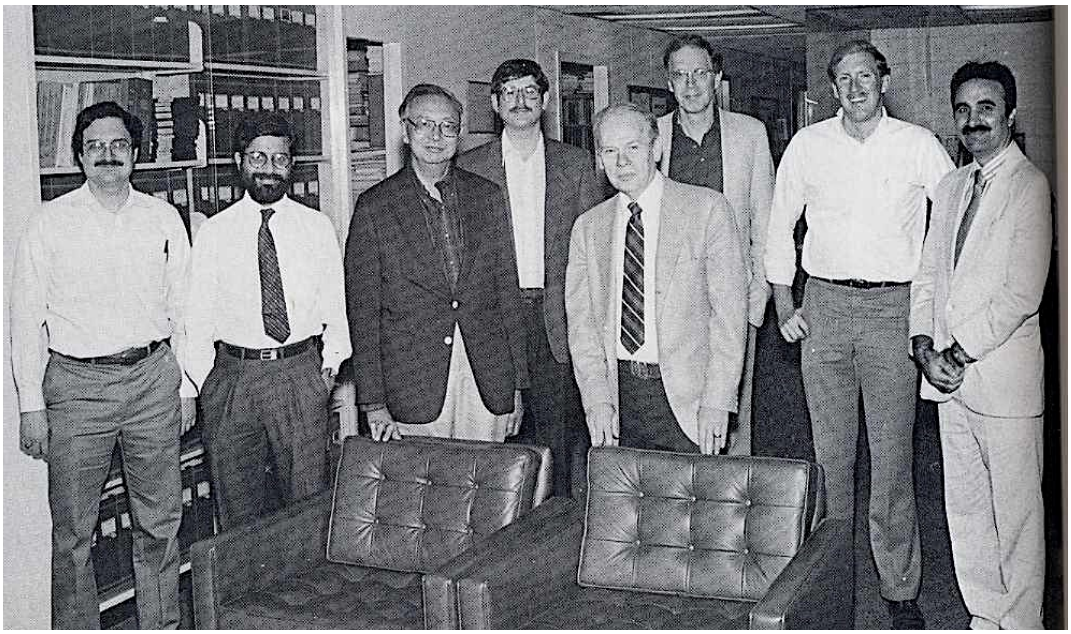
1985-1986



1986

1987





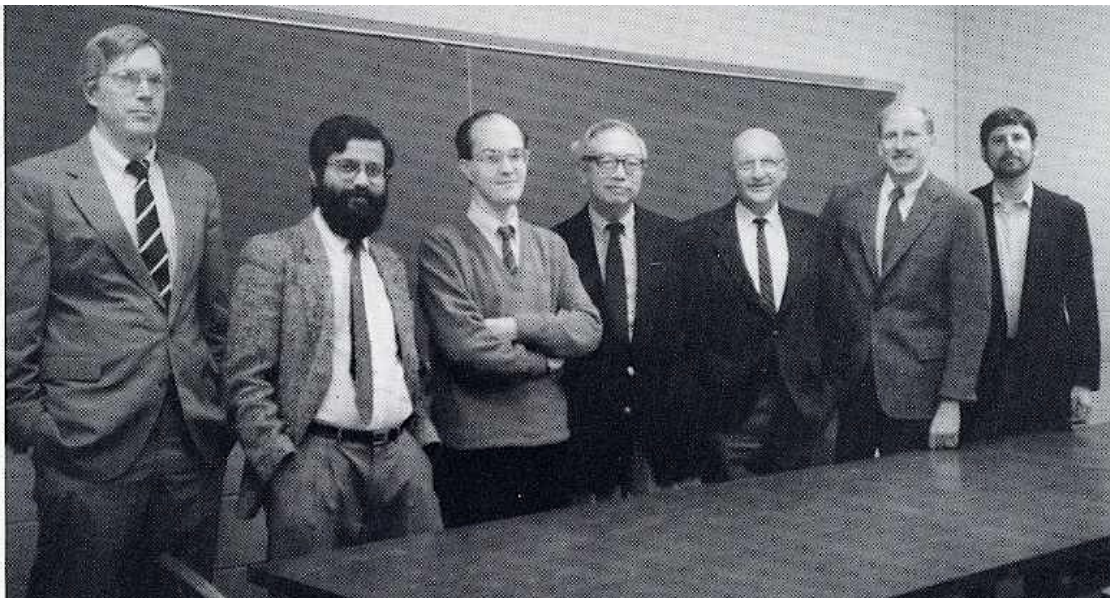
1988-1989

1990

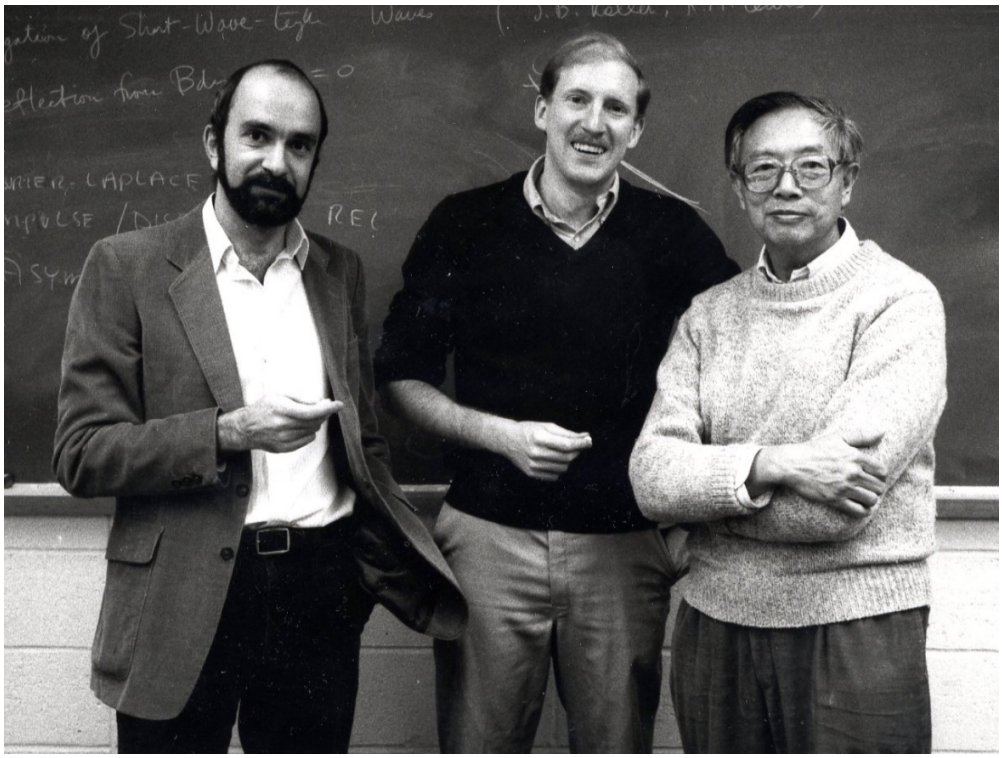
1991

Left-right: T.C. Marshall, C.K. Chu, Amitava Bhattacharje, Irving Herman, John Helm, Michael Mauel, Robert Gross, & Michael Tabor

1993

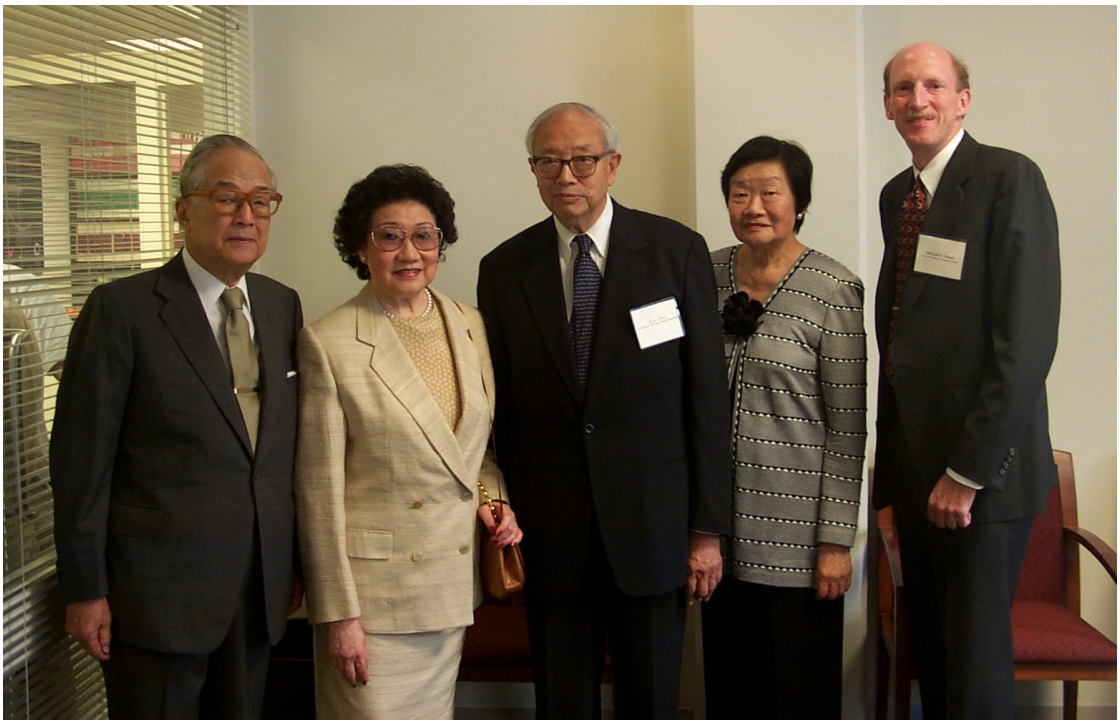


Left-right: T.C. Marshall, Amitava Bhattacharje, Lorenzo Polvani, Robert Gross, Michael Mauel, Irving Herman,

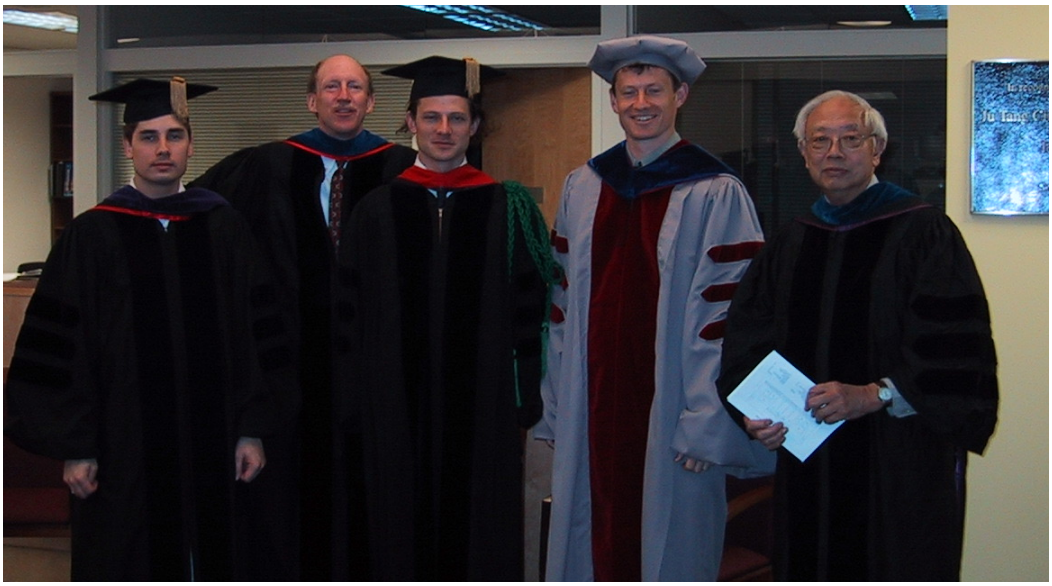


1996

Birthday Symposium
1998



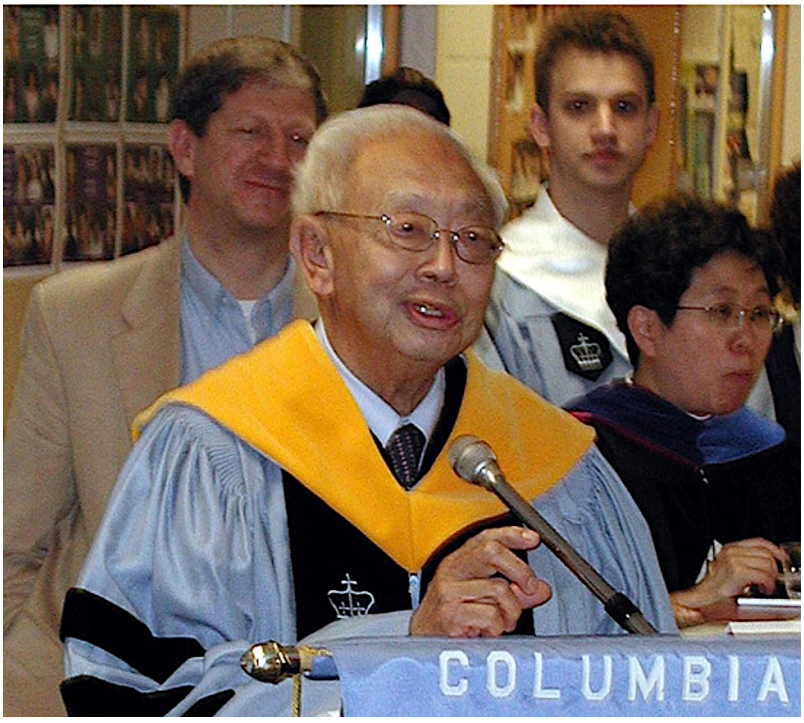
2002



2003 Retirement

In 2006, Prof. Chu received an honorary Doctor of Science degree from Columbia University, in part for his recognition of the power and necessity of computation in understanding fluid dynamics

2006



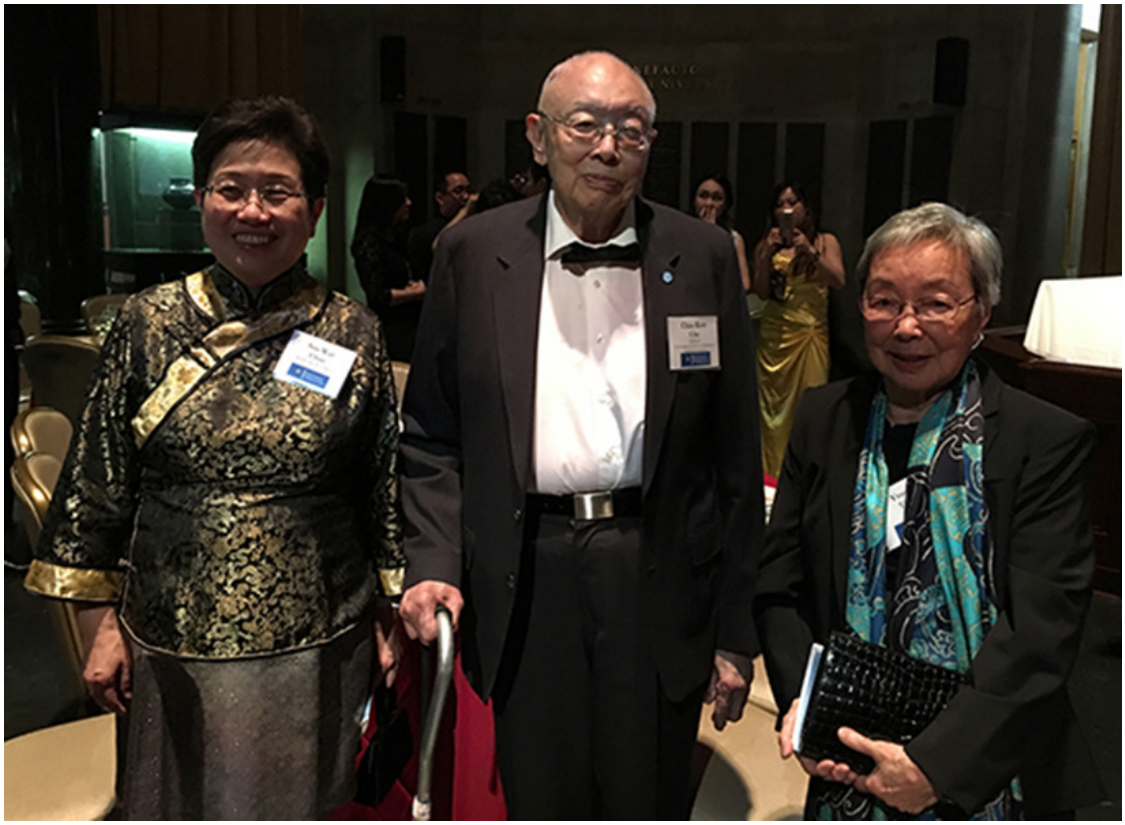
Left-right: T.C. Marshall, Robert Gross, Michael Mauel, C.K. Chu

2009

Columbia Engineering Dean Boyce & Prof. Chu in 2013

2014

C.K. Chu & Robert Gross



2016 Asian Columbia Alumni Association 20th Gala

2016

2018

Memorial for Robert Gross

Tributes from friends & colleagues
at Columbia University

Reflections from Columbia Faculty

John was an outstanding colleague. He will be missed.
– **Professor Daniel Bienstock,** dano@ieor.columbia.edu

Prof. Chu was fearless in life, understood and reminded us our obligation to each other. He inspired all to speak the truth in order to find solutions to problems. He passed away in love and without regrets. He will be deeply missed as a teacher, colleague and true friend.
– **Professor Siu-Wai Chan,** siu-wai.chan@columbia.edu

I will always have the warmest memories of John. He recruited me to Columbia, and he was always a warm, supportive and nurturing colleague and mentor. He will be remembered as a giant in the history of our department and School, in part for propelling applied math and for transforming the School itself.
– **Professor Irving Herman,** iph1@columbia.edu

Those few precious sit-down-and-chat moments I've had with John, he was wise, warm, and considerate. I am glad that i was able to interact with John & will always remember and try my best to implement his valuable advices. His life should and will, no doubt, be celebrated and appreciated by all those who knew him. – **Professor James Im,** ji12@columbia.edu

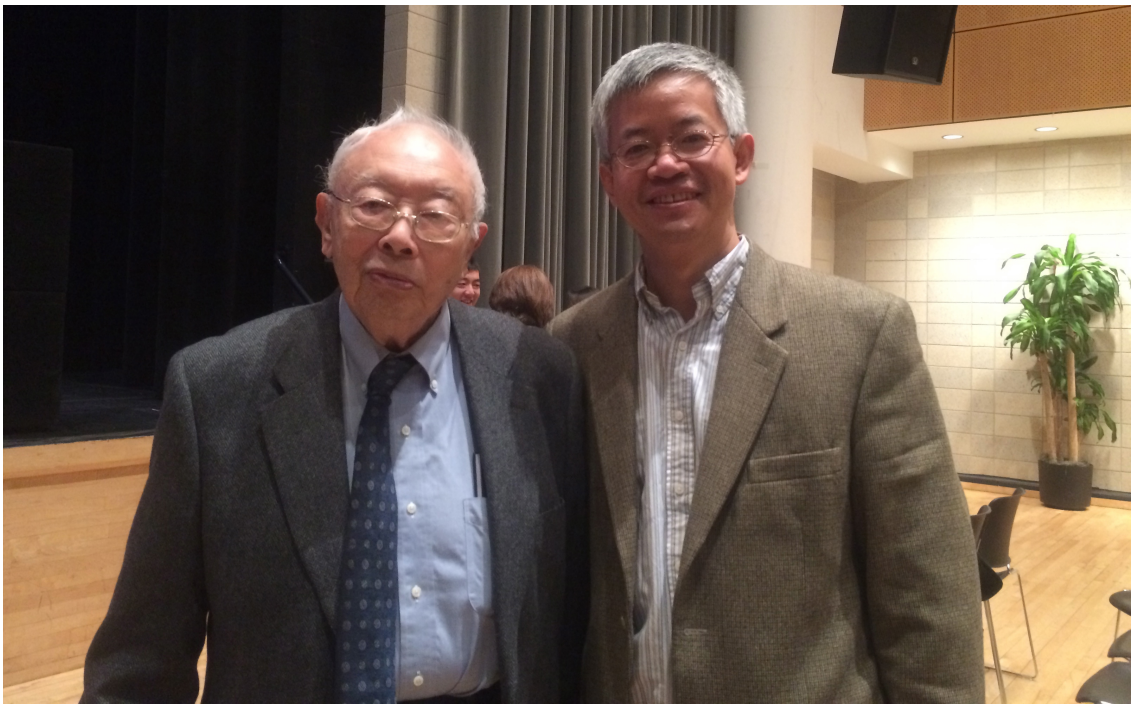
John loved Columbia and cared deeply about APAM, and the Applied Math Program he established and nurtured for many years. I'm grateful for John's friendship and mentorship and will miss him.
– **Professor Michael Weinstein,** miw2103@columbia.edu

Reflections from Columbia Faculty

Seeing John in the garage was a big lift for me as we shared the same aspirations as well as opinions of the administration and the great Columbia students. I consider a great privilege to be in this great institution at the same time with John; he was a kind soul with comforting words on common issues.
- Ponisseril Somasundaran, ps24@columbia.edu

I will always cherish John's wisdom, kindness, and distinctive sense of humor. For a young researcher starting at Columbia, he was an invaluable mentor who knew everyone, everything, and could help cut to the heart of any problem. A true scholar and a fearless advocate for Applied Mathematics, the department, and the school, we will always be grateful for his friendship and the time we had together.
- **Professor Marc Spiegelman,** mws6@columbia.edu

John was an energetic and effective supporter of APAM and applied mathematics in particular. He did so much to build up the subject at Columbia and to support his more junior faculty in the field.
– Professor Chris Wiggins, chris.wiggins@columbia.edu



Above: Prof. Chu and Prof. Du

Professor Qiang Du
colleague, qd2125@columbia.edu

John has been a beloved member of Columbia, SEAS, and APAM. He was a true champion of applied mathematics and deeply valued the establishment of the applied math program at Columbia. He was a visionary and he has left a great legacy in us. When we visited him last November, he was fragile physically but still as humorous and high-spirited as before. He could recall the stories clearly of how applied mathematics found its home at Columbia. He will always inspire us and will be greatly missed.

Reflections from Former Students and Colleagues

Allen Kuo
former student, allen_kuo@yahoo.com

I was very sad to hear of the passing of Professor Chu.

Professor Chu was my "spiritual advisor" during my time at Columbia Applied Mathematics. He founded the program and provided continuous encouragement to me during my six years there. I am forever grateful for the faith he had in my work. My last interaction with him was in 2013, when I asked him to write a letter of recommendation for me to teach at Hong Kong University of Science and Technology (HKUST). I do hope if there were any students HKUST who did learn anything from me, that it is because of the good graces of Dr. Chu.

Dr. Chu's academic work is well known. He studied under the great applied mathematician K.O. Friederichs at Courant. His teaching always had the "shock effect" (as he would call it), to lure in his audiences, and even Robert Merton, Nobel Laureate in Economics, acknowledged his gifts at teaching.

As a Chinese-American, I also learned many things about Chinese language, history and culture from him. He came from a very distinguished family in Shanghai and was close friends with T.D. Lee, Chien-Shiung Wu, I.M. Pei and C.T. Hsia. He was well-versed in the Chinese classics and he commissioned the calligraphic work of C.C. Wang for the humble applied mathematics graduate student computer lab, in the basement of the Mudd building. He funded that lab, and dedicated it to his own parents. He always wanted the students to do great work, and the calligraphy on the wall, quoting the Tang Dynasty poet Liu Yuxi, was our encouragement to have both intellectual depth and substance, in any environment you happen to be in:

山不在高，有仙则名。水不在深，有龙则灵。斯是陋室，惟吾德馨

Rest in peace Dr. Chu ! You set the bar very high for all of us, and I will never forget your generosity and support.

Allen Kuo
Singapore, 2023

Xiaolin Li
former student,
xiaolin.li@stonybrook.edu

A tribute to my dear teacher and mentor, Prof. C. K. Chu. He was my Ph. D. thesis advisor. He had been much more than advising me for the Ph. D. thesis.

Prof. Chu had many students. But I was his first student from the People's Republic of China. When I came to the United States in 1982, I was not mentally prepared for many things that would happen to me after I left home thousands of miles away. He guarded me step by step along the academic path. My first year at Columbia was difficult due to the language barrier. I had to take full time English. I went to him and asked him how could I continue if I could not even pass the English test. He told me not to worry "language is important". When I passed the doctoral qualifying exam with top score, he came to me and patted me like father "I knew you would do well".

My ex-wife divorced me after she came to the United States. There was a period of time when I was in deep depression. He told me to take two weeks of vacation. When I came back from Boston, he invited me for dinner with him in a restaurant on Amsterdam Avenue. We chatted about many things. In particular he said: "You are young and will have a bright future. A man does not grow up without a divorce." His sense of humor and wisdom of life enlightened me, making me feel much more relieved. I offered to split the bill for the dinner. He said: "You will pay me when you become a professor".

After graduation, he recommended me to his friend Harold Grad at the Courant Institute. But at that time Harold Grad did not have enough funding and sent me to James Glimm as a postdoc. It was from that point, I became a career applied mathematician. Many years later, I myself became a professor. I always thought of the dinner with him on Amsterdam Avenue. I have not paid him back. I am forever indebted to him.

May God bless Prof. Chu in Heaven

Ahmet Y. Aydemir
former student, aydemir@utexas.edu

I learned with great sadness that we lost Prof. C. K. Chu. He was my thesis advisor (1980), and a trusted and greatly respected mentor. Although we had lost contact some time ago, my wife and I will always remember his warmth, humanity and friendship. We will miss him. Our condolences to his family and the APAM community.

Elizabeth Tom
Former student, fmlizt@yahoo.com

Prof. Chu was a kind and caring professor, with a wry sense of humor. It had been a privilege to be his student in the Class of 1981 BS.

Gary Wang
Former student, gcw20@columbia.edu

Thank you to Professor Chu for his guidance and mentorship of many students. Professor Chu had an easy-going nature balanced with the utmost professionalism. We will always remain grateful for Professor Chu's ability to inspire students to work with dedication and to keep striving despite any hardships or obstacles. Thank you and condolences to Professor Chu's family.

Jim Whitney
Former student, gcw20@columbia.edu

A great friend and a great teacher. I was his grad student from 1966 through 1969. He was able to explain things more clearly than any other teacher I can remember. He was always helpful and accessible. We kept up our personal friendship throughout the rest of his life. I had the honor and privilege of visiting him just a short time before he passed away. My most sincere condolences to Barbara and the other members of the family. The photo (right) is from graduation day, June 3, 1969.

Bonnie Silvera (Wilensky)
former student, bonniesilvera@yahoo.com

One of the greatest privileges of my life is to be able to call myself a student of Professor Chu's. My first encounter with Professor Chu was when I decided to switch majors my Junior Year to Applied Mathematics. I was late to be switching majors but Professor Chu gave me the pass because he was impressed with grade of A+ is probability and statistics. Professor Chu was the animated head of the Applied Mathematics and Applied Physic department. He really cared about each student and considered our success his success. He took time to get to know each of us, and he followed our careers even after we graduated! He would carry a list of all of his former students and track our careers! I always felt we, Professor Chu's students, were his greatest accomplishment. He cared deeply about Columbia Engineering with every opportunity fundraise for another Professorship. It is rare to have a professor take the time to make connections with students that carry through life.

Profssor Anastasia Papavasiliou
Colleague, a.papavasiliou@warwick.ac.uk

I was a non-tenure track Assistant Professor of Applied Mathematics at APAM in the period of 2002-04. This was my first academic job and Professor Chu's trust, mentorship and support in these first steps after my PhD have defined my career - for that, I am grateful. I remember how he used to tell me that "you and me come from countries with thousands of years of history" and then go on to talk about his passion for history. His stories, his advice and his passion will always be a source of inspiration.

Helen Lin Sun
Friend

Professor Chu is a longtime friend of Columbia University's Alumni Association of Hong Kong. He was a frequent visitor back in the 90's when I was President of the alumni association. He offered his time to be a presenter at a Speaker event. Indeed, his profound Mathematical theory often stretched our audience's ability to comprehend and to question! Professor Chu is a passionate teacher and a Columbia advocate. I have come to know him as a professor and a friend. He came to my wedding in San Francisco and we have kept in touch since. He will be dearly missed!

Stan Alama
Former student, alama@mcmaster.ca

Professor Chu was very good to me as an undergraduate and had an enormous influence on my academic career. Hesitating about a major in engineering, I went to see him to ask about the new Applied Math major, and he just reeled me in to the program. He was always so warm and welcoming, and always had time to chat. I can remember once coming to the Applied Math Seminar class and he started with what he called a "gossip session". We talked about graduate schools, trends in math research, and even some surprisingly candid remarks about our other courses. I remember his big smile, and reassuring laugh, with great fondness.

Wei Wu
former student, wuwei8186@gmail.com

It is with heavy hearts that we mourn the passing of our beloved Professor Chu. He was such a kind scholar and a true gentleman.

Professor Chu was instrumental in setting up the Fu Foundation scholarship program, which brought 50 plus students from various parts of China to the Columbia campus. This program started in the early 90s and lasted for a decade. Professor Chu played a pivotal role in the design, the execution and the maintenance of this program, and for as long as he could. After his retirement, and during one of his travels to Hong Kong, he even reached out to potential benefactors for the extension of this program.

I always admired his passion for this program, but it was not until much later I have come to realize a bigger goal that professor had in mind. In late 19th century and early part of 20th century, many Chinese students have studied at Columbia, in fact, it was the most popular destination for Chinese students at that time. Many of them became highly achieved scholars and experts, include Hu Shih and those prominent early educators. That tradition was later interrupted by civil war and change of government. After more than 50 years, this tradition has been restored. Thanks in part by Professor Chu and the scholarship program he helped to create. While many later students, I count myself as one, were unaware or unfamiliar with the rich past that Columbia had with China and the group of elites that it trained almost a century ago, Professor Chu, born in the 1920s and having lived through the turbulent years in the 1930s and 1940s, must felt much strongly about reviving this tradition. Indeed, through his efforts, Columbia re-established the connection with a modernized China, and the younger generation gained not only a rich education experience but also an opportunity to extend this tradition much further into the future. Today Columbia has once again become a very popular school amongst Chinese students, and among the graduates, I come to know many who are already influential scholars and prominent educators of our age.

For Professor Chu's great achievement, I am forever grateful, at the same time, overwhelmed with a sense of responsibility to carry on this legacy.

Paulo Hiroshi Sakanaka and Munemasa Machida
State University of Campinas, Campinas, São Paulo, Brazil
Former students

On behalf of the Brazilian students who have completed Doctor Degree under the supervision of Professor C.K. Chu, we would like to express sincere gratitude for his teaching and conducting our research in the right direction, and above all spreading our research result all over the World through international meetings and seminars at universities.

Besides an excellent teacher and thesis adviser, he was also an excellent friend! The size of this friendship through his area of research was enormous. He made sure that we could share his contacts, turning us known throughout the community. We express our sincere gratitude for our beloved Professor John Chu.

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Guang Yu
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I was Prof. Chu's last PhD student. Several years after Prof. Chu moved to the Fellowship Village, I started to visit him twice a year. He was always very happy to see me and invited me to join lunch or dinner with him and Yvonne. Because of the pandemic, I couldn't visit him for two years. As things started to go back to normal, on July 16, 2022, I went to visit Prof. Chu and brought him some French pastries like before.

He was very happy to see me. Even though he looked physically weaker than before, he still talked and laughed cheerfully as before. Initially I was planning to leave early considering he might get tired by talking too much. He told me he hadn't seen me for a long time and he would like me to stay longer to chat. I chatted with him for several hours. When it was lunch time, he wanted to order lunch for me. I was cautious and wanted to wear a face mask all the time, so I didn't have lunch with him. I talked to him while he was eating lunch.

He asked me whether I had seen the photos in his room. Those included the photos of his thesis advisor Prof. Friedrichs, his father and his mother. There was also a photo of him getting his honorary doctorate degree from Columbia. Starting from the photos, he looked back and reminisced about the past. Prof. Chu attended St. John High School and Shanghai Jiao Tong University. Then he went to UPenn, however, he didn't like studying business. He transferred to Cornell University. After he got his Master degree, he excelled at GE, and his professor from Cornell offered him a faculty position at Stevens. He accepted the offer because he could have the opportunity to study for a PhD at Courant simultaneously. He got his tenure at NYU and came to Columbia afterwards. Prof. Chu remembered many details and enjoyed sharing his fascinating stories.

Prof Chu was like a family member. I was very happy to see him. When I was leaving, Prof. Chu asked me to visit him again. I called him on September 10, 2022 to wish him a happy Mid-Autumn Festival and he asked me to visit him soon. However, I got Covid several weeks later and couldn't visit him.

Regretfully I didn't take any photo with Prof. Chu when visiting him at Fellowship Village during the years. I am sharing a photo taken in March 2011 when Prof. Chu had dinner with some former students including me at a Chinese Restaurant near the campus.

(page 1 of 2, continued on the next page)

Guang Yu, continued

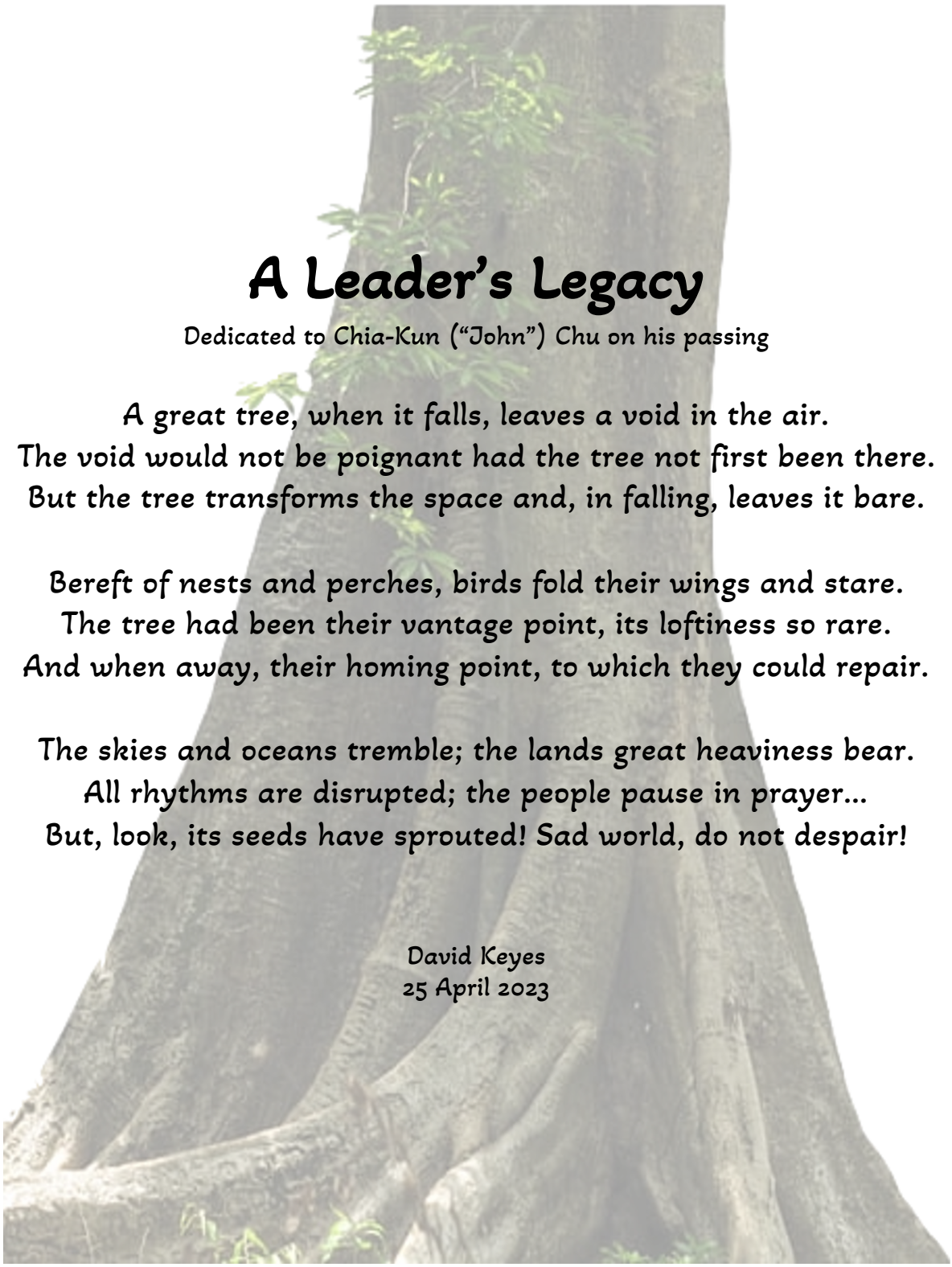
Prof. Chu really cared about his students. And he hoped his students would have a career in science. After I got my PhD, I was very interested in doing research in Theoretical Physics. Considering there was a big knowledge gap, I was planning to work for a year while applying for a theoretical physics PhD program. I told Prof. Chu about my plan only after I found a job and accepted the offer because I thought he might feel disappointed that I didn't want to continue my research in Applied Mathematics. He supported me to study physics, and he thought I should decline the job offer. The HR manager was furious after I told her my decision. Prof. Chu called the HR manager to explain the reason to her. He also thought I didn't need to go through another PhD program, and he talked to Prof. Brian Greene in the Physics Department to let me study with him. Moreover, Prof. Chu gave me financial support with his own money. I had a great time taking physics classes and studying papers. Even though for various reasons, I failed to seize the golden opportunity to pursue Theoretical Physics and didn't continue to do research in academia, I was deeply influenced by Prof. Chu's dedication to science and his kind support to his students.

Prof. Chu was gifted with languages, he knew Chinese, English, French, Japanese, Swedish, German and Russian. While I was working on the KP equation, Prof. Chu and I went to the math library to print out the original paper in Russian. He said the Russian paper was rather easy to read and translated some of the paper. He was very proud that he once gave a speech in French in Paris.

Prof. Chu liked watching movies and going to concerts. When I saw him, I usually asked him what movies he saw and what concerts he went to. I also asked him what books he read. I remember he was reading some classical Chinese literature books and the books by Winston Churchill. He also liked reading the New York Times.

Prof. Chu had a great sense of humor. When I was a TA for one of his classes, I once printed out some homework solutions for the students with a small font. When he saw the solutions, he didn't say it was too small to read easily, instead he said his students could become short-sighted by reading the solutions. While he taught us the gradient descent, he brought a potato to the class for us to understand it visually. He cared about the department and invested lots of effort to recruit excellent professors. And he really enjoyed spending time with students, for example. sometimes he invited us to have tea or drink in the afternoon.

Prof. Chu was a world-class scientist, a caring teacher and a fearless leader with a distinct style. His students benefited greatly from his inspiring influence. I will always remember Prof. Chu with gratitude.



A Leader's Legacy

Dedicated to Chia-Kun ("John") Chu on his passing

A great tree, when it falls, leaves a void in the air.
The void would not be poignant had the tree not first been there.
But the tree transforms the space and, in falling, leaves it bare.

Bereft of nests and perches, birds fold their wings and stare.
The tree had been their vantage point, its loftiness so rare.
And when away, their homing point, to which they could repair.

The skies and oceans tremble; the lands great heaviness bear.
All rhythms are disrupted; the people pause in prayer...
But, look, its seeds have sprouted! Sad world, do not despair!

David Keyes
25 April 2023


COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK
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