

Fan Chung Graham



Fan Chung was born in Taiwan in 1949. Her family was from Mainland China, but moved to Kaochiung, Taiwan. Her father was an engineer, and her mother was a home economics teacher. As a home economics teacher in Taiwan, her mother instilled in her daughter the advantages to being economically independent by encouraging Fan to have a career and “not just to be an attachment to a man.”

As a high school student, Fan Chung decided to pursue mathematics. Guided by her father and her excellent scores on the mathematics aptitude tests, she entered Taiwan University, where after four years she received a Bachelor’s Degree in mathematics. The University of Pennsylvania was the institution where Fan Chung chose to pursue graduate studies. Her research area was in combinatorics and discrete mathematics.

“Culture shock,” such as differences in language, customs, and values made the transition to America quite difficult. Fan Chung had to adjust to a whole new lifestyle, and she did so beautifully. In 1974, she received her PhD in mathematics from the University of Pennsylvania. Since then, she has been employed in many prestigious institutes, despite her fear that after graduation she would not be able to find a job because she was a pregnant female from Taiwan. She was employed for over 20 years with Bell Labs, then she moved to a teaching position at the University of Pennsylvania and presently she is a professor at the University of California at San Diego.

Fan has written over 200 papers, and is the author of two books. She also works on the editorial boards of more than a dozen journals. In 1990, Fan was awarded the Allendoefer Award from the Mathematical Association of America for an article she co-authored with her husband, Ron Graham, who is also a mathematician.

One of the papers co-authored by Fan Chung Graham was entitled, “Mathematics and the Buckyball.” A buckyball is a molecule comprised of 60 carbon atoms arranged in a form similar to a soccer ball. Its properties, such as symmetry, have inspired interest in people throughout multiple fields of science. The mentioned paper provides a mathematical analysis of some of the buckyball's properties, such as stability, by combining topology, group theory, three-dimensional geometry, and graph theory.

Fill in the Blank:

1. Fan Chung Graham grew up in _____.
2. Fan Chung Graham attended the _____ for her undergraduate degrees and the _____ for graduate studies.
3. “_____” made the transition from Taiwan to America difficult at times.
4. Fan Chung Graham’s research area was in _____.
5. Fan Chung Graham’s husband is also a _____.

Mathematics:

1. An icosahedron has _____ edges coming from each vertex.
2. What geometric figure does each vertex of the icosahedron turn into while transforming into the buckyball?
3. The buckyball looks like:
 - a. a football
 - b. a basketball
 - c. a soccer ball
 - d. a complex quasi-linear partial differential equation
4. According to Euler’s formula, sides minus edges plus vertices is equal to
 - a. $a_n = a_{n-1} + c * a_{n-1} * (P - a_{n-1})$, where $a_1 = b$.
 - b. a google
 - c. a decahexahedron
 - d. 2

References:

Chung, Fan and Shlomo Sternberg. “**Mathematics and the Buckyball**” This paper can be accessed from the website <http://math.ucsd.edu/~fan/>.

Henrion, Claudia. Women in Mathematics: The Addition of a Difference. P. 96-107. Indiana University Press, 1997.