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## In Memoriam of Yuan-Cheng “Bert” Fung

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At exactly three months after our Bioengineering Field celebrated Dr. Fung’s centennial birthday, we lost our most recognized and respected pioneer on December 15, 2019!

**Yuan-Cheng “Bert” Fung, Ph.D.***September 15, 1919 – December 15, 2019***The Father of Modern Biomechanics and A 5G Man**  
(Genius, Giant, Generous, Genuine and Gentle)*E-mail address: [ddecenzo@pitt.edu](mailto:ddecenzo@pitt.edu)*

It is impossible to memorialize Dr. Fung’s long, productive and impactful life on all of us. Thus, this writer would encourage everyone to read those articles on the reference list in order to get to know more about Dr. Fung ([Jiang and Dai, 2018](#); [Chien, 2019](#); [Woo, 2019a](#); [Tong, 2018](#)).

Briefly, Dr. Fung was known as a pioneer and brilliant researcher, a distinguished scholar and consummate teacher, a quintessential leader and visionary role model and above all, a respected mentor and cherished friend. The writer suggests that we might all want to remember him in the following way.

**Fung was a Genius!** With his visionary thinking and thorough understanding of the laws of physics as well as mastery of applied mathematics, Fung made seminal contributions in both Aeroelasticity and Biomechanics. With his distinct and clear writing skills, he taught us lessons on the sphering of red cells, sheet flow for pulmonary alveolar microcirculation, strain energy density function for living soft tissues, quasi-linear viscoelastic theory for soft tissues, stress-dependent homeostasis as well as residual stress and wave propagation to reduce impact trauma and so much more.

**Fung was a Giant!** He was elected to all three U.S. National Academies (Engineering, Science and Medicine) and also the Chinese Academy of Engineering and Academia Sinica. He received a National Medal of Science from President Clinton and also won the Founders Award and Russ Prize from the National Academy of Engineering. The International Astronomical Union named an Asteroid (210434 Fungyuancheng) after him. Our distinguished colleague, Shu Chien wrote that “Dr. Fung opened up a new vista for bioengineering . . . Dr. Fung is not only a superb scientist and engineer, but also a wonderful artist. He has excellent command in Chinese calligraphy and poetry. He is a Renaissance man.” ([Chien, 2019](#)).

**Fung was Generous!** He loved to share his vast knowledge freely with all his students, colleagues and friends. He had written many outstanding treatises in Applied Mechanics and Biomechanics. He was personable and easily approachable to all and was very liberal with his time to dispense his advice. He also devoted his best efforts toward his profession and its promotion. The ASME Biomechanics Symposium (the predecessor of our SB<sup>3</sup>C), the World Congress of Biomechanics, the U.S. National Committee of Biomechanics and our Journal of Biomechanical Engineering were all started by Fung. He also taught many of us the needed steps to do research properly.



**Fung was Genuine!** Those of us who are lucky enough to know him well will always remember him fondly in that way! Geert Schmid-Schoenbein, one of Fung's mentees from UCSD said, "He was the most joyful individual. When you stepped into a building, you could tell where he was just by the sound of his laughter." (Patringenaru, 2019). Mike Yen, another mentee, accompanied Fung on a trip to China after the Cultural Revolution and Yen said, "Everywhere we went, he wanted to help the poor and the needy. I learned from him to be concerned about people's humanity." (Patringenaru, 2019).

**Fung was Gentle!** Many have fondly called Fung "a gentleman and a scholar". Pin Tong, his mentee said, that "he believes in harmony and gentility. He treats everyone collegially and does not compete with anyone." (Tong, 2018). Ghassan Kassab, another mentee, has written a beautiful article on Fung (Kassab, 2004). When reading it, one would learn what a gentle professor Fung was. Peter Chen, his student and colleague said that "Fung treats his students like family and takes care of all their needs. As such, students could focus on their studies while learning to respect, admire, and love him." (Chen, 2010).

Below is one of the treasured notes Dr. Fung had written to me in 2011 (Woo, 2019a).

*"... it has been such a joy to be your friend and colleague for such a long time—a combined 82 years if we count in both directions—and to see your career and family blossom.*

*Our scientific discoveries during our long collaboration, and your pioneering work in the years since, have accumulated to an extraordinary contribution to humanity. Each discovery, and each interaction, has been personally satisfying.*

*The personal connection is most precious. How rare is the chance to combine work and friendship, so deeply, and for so long! We have been blessed with more than our share of harmony and opportunities. Living close by for 20 years enabled our families to become fast friends, and bioengineering conference organizers pick such great venues that our community has remained close for decades since."*

Luna, Dr. Fung's beloved wife and partner for almost 70 years shared: "He laughs frequently and heartily. He loves deeply. He loves his family. He loves his friends. He lives simply. He does not demand anything. He does not compete with anyone and never tries to keep up with the Jones." (Woo, 2019b).

Conrad and Brenda took great care of their parents for a number of years. They revealed ten years ago that "... our father's diary, a personal record begun in school three quarters of a century ago and updated daily ever since ... intervening days number over twenty-seven thousand ... feelings were recorded, as were guest lists of innumerable parties .... "What dedication," we once wondered aloud in his presence, to which he replied, 'I decided to do it, and I did it.'" (Fung and Fung, 2009).

They also wrote, "To understand our father's inner harmony and how he could achieve so much with such apparent ease, we cite one of his favorite sayings. 'Easy to do. Hard to Know,' as a unifying theme for his life as a model of Choice coupled with Commitment." (Fung and Fung, 2009).

Dr. Fung is survived by Conrad A. Fung and Brenda Fung Manos and three grandsons, Nicholas Manos (wife Claire Bazley), Anthony Fung and Michael Fung.

Written on Memorial Day

May 25, 2020

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