In loving memory of Alvin – Mr. Magnet and my teacher

Tengming Shen, Berkeley, CA, 94720, August 11, 2020

Alvin has not only made a huge impact to the physics programs and the superconducting magnets for proton colliders but also left behind a legacy to the general society. Today at 4 pm my wife and I are going to attend the back-to-school meeting for our son, Max, a healthy second grader. But in 2012 when Max was three months old, he received a seven-hour-long laparoscopic surgery to remove a cyst outside his liver. Such complex surgery was not possible without the 3D images from the MRCP. The commercial development of the MRI as a powerful medical diagnostic tool is a triumph of science, contributed significantly by Alvin's pioneering work with the Tevatron superconducting magnets and the success of Tevatron as a physics machine. You can see that my family, like millions of others, has been altered by Alvin.

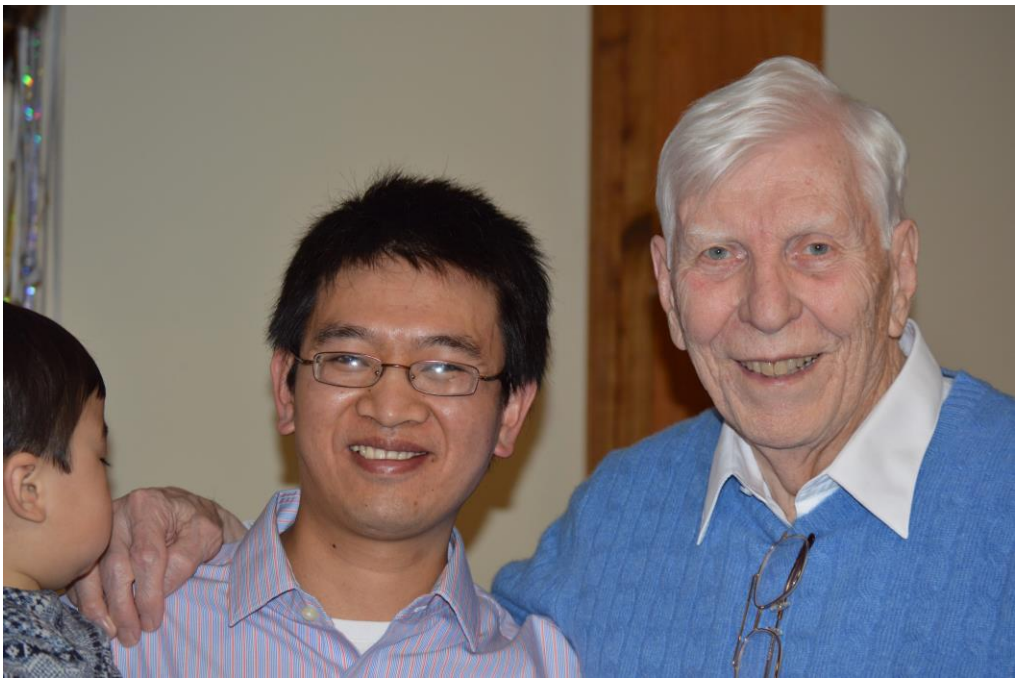
I first met Alvin through video meetings in 2009, when I was a PhD student and he and Prof. David Larbalestier of the National High Magnetic Field Laboratory (NHMFL) established the Very High Field Superconducting Magnet Collaboration to develop the high-temperature superconducting materials and magnets needed by the Muon Collider. He didn't just lend his name to the collaboration; rather he was engaged in the technical discussions (in 2011 when he was 87, he published this technical note that provides an analytical model of the heat treatment of the Bi-2212 high-temperature superconducting round wires and coils, the best one on this topic). I was struck by the clarity of his thinking and his sharp and critical minds. In May 2010, I came to the Fermilab for an interview of the Peoples Fellowship. Alvin came to my seminar and asked many penetrating questions. To my delight, he came to me at the end of my seminar and invited me and a committee member to dine with him and his wife Janine at the MAPO restaurant in Naperville. My wife often and correctly made the comment that without Alvin I couldn't join Fermilab and our lives, again, are different.

After I joined Fermilab, I frequented Alvin's office to discuss the technologies of superconducting magnets and our discussions often went beyond physics and technology into politics, cuisine, art, and general society. I am forever indebted to Alvin. He cut physics and engineering problems open with ease, he was full of wisdoms, and his passions towards physics and life were tremendous. Alvin and Janine kindly invited my wife and myself to join many of small and large parties at their beautiful Warrenville home and we met many of outstanding people there including legends and his friends Leon Lederman and Helen Edwards and many others. Alvin and Janine treated us, and many other young people throughout his life as I understand, like family; for example,

Janine threw a wonderful baby shower party for the arrival of Max. Their hospitality and kindness have warmed our hearts and my wife and I will forever treasure our fond memories of Alvin.

Alvin's 90th birthday at the Chez Leon, Fermilab (March 22nd, 2014) (From left to Right, Janine, Alvin, Jianying, Max).

Alvin's 90th birthday at the Chez Leon, Fermilab (March 22nd, 2014) (Alvin looked fondly at Janine and Max admired the famous physicist).



Alvin's 90th birthday at the Chez Leon, Fermilab (March 22nd, 2014) (from left to right, Max, Tengming, and Alvin).

On January 20th, 2019, Alvin and Janine dined with Tengming and Prof. David Larbalestier in Warrenville after a US Magnet Development Program meeting at the Fermilab