
Daniel Freed

Dr. Daniel Freed received his PhD from the University of Chicago in 1985. After that, he was a Moore Instructor at the MIT and then became an assistant professor at the University of Chicago. In 1994 he became a professor at the University of Texas at Austin. He works on K-theory and mathematical aspect of quantum theory.

During 2002 to 2003, Freed was a Guggenheim Fellow and from 1988 to 1992 a Sloan Fellow. In 2002 he was an invited speaker at the International Congress of Mathematicians in Beijing. He is one of the founders of the IAS/Park City Mathematics Institute and is since 2006 a member of the board of trustees of the Mathematical Sciences Research Institute, where he has belonged to the scientific advisory board since 2002. He is a Fellow of the American Mathematical Society.

Yau: 70 and Counting

I first met Yau in the spring of 1981 at the Institute for Advanced Study; I was sent by Bott to meet him. Nervous, I arrived at his office only to discover that he was simultaneously: (i) on the telephone, (ii) instructing multiple postdocs who were at the blackboard, (iii) working with someone seated across his desk, and (iv) interviewing me. He asked me three mathematical questions, none of which I could answer adequately, but he was very gracious and generous nonetheless. This was my initiation into Yau's prodigious energy and the beginning of our friendship.

Fast forward to the fall of 2014 when I arrived at Harvard for a sabbatical stay just as his latest franchise, The Harvard Center Of Mathematical Sciences And Applications, was having its opening party: lunch in the basement of the Science Center. There was quite a crowd, appropriately, and Yau made a speech which included plans for that first semester. That's where I found out, publically, that I was organizing a

weekly seminar! Fortunately, by this time I was wise to Yau's multitasking, and I somehow intuited that he had also asked 3 other people to do it, so indeed seminars did happen...

You see, I'm also sure that Yau asked many others to write this tribute too. But this time I won't deny myself the pleasure of a few words. In all seriousness: Yau is extraordinary, as a mathematician, as a mathematical entrepreneur, and as a person.

It wasn't long after my initial encounter that I heard Yau give a mathematics lecture. To hear Yau lecture on Riemannian geometry is to hear a master surveying his domain. Others will enumerate his mathematical contributions; the legacy he is creating through his students, postdocs, journals, publishing companies, conferences, institutes; his mentoring of young mathematicians; his unbounded curiosity; the joy of collaborating with him; etc. I simply take this opportunity to record a few random anecdotes which illustrate a bit of Yau's multifaceted personality.

Yau was by all accounts a great success as Chair of the Harvard Math Department. John Tate—who, despite his 20+ years on the faculty of UT Austin was never let go by Harvard—had recently won the Abel Prize and a party was organized in the fourth floor lounge to celebrate. The Dean or Provost showed up and made a nice speech about John. At some point he began to talk about Yau, telling that he got nervous before each time Yau had an appointment, since he knew that no matter what he would end up saying 'Yes' to whatever request Yau made. At that precise moment Yau piped up in front of the large crowd: "You know, as you look around you'll agree that we could use some new furniture..." And, sure enough, if you visit that lounge today you'll see the fruits of Yau's insistence.

I got a firsthand taste of Yau's mastery of the Dark Arts of Development. It was during the week of the inaugural String-Math Conference, which Yau has been involved with from the beginning. A small group of us were at Ron Donagi's home for a lovely

dinner. He and his wife were busy in the kitchen and we guests were entertaining their delightful children as well as each other. At some point Yau turns to me. “What would you say was the best part of your undergraduate experience at Harvard?” I recounted some of the wonderful opportunities—indeed I had many. After some more back and forth: “Surely you’d like to give back for that great experience.” In retrospect I’m very grateful to Yau—for making me laugh so hard!

So many of Yau’s best attributes were on display at the Grand Opening of his Tsinghua Sanya International Mathematics Forum in late 2013. Sanya is the “Hawaii of China”, a beautiful spot where Yau built a mathematics institute on the top of a hill. The sheer number of people who contributed to those few days was overwhelming. First, the construction was a race to the finish, and there must have been literally hundreds of workers. Each day the road up to the Forum was paved an additional quarter mile, empty rooms in

the conference center transformed into finished lecture rooms, and the living quarters emerged from the ground as if by magic. The opening ceremony was attended by dignitaries from Beijing together with the visiting scientists. What a collection: Nobel Laureates in physics and economics; top mathematicians of all ages, enough for four simultaneous conferences as well as several plenary lectures; and 1,000 eager young people soaking up all the mathematics around them. The banquet was another fantastic spectacle. After each of the 45 courses there was a different form of entertainment. Speeches. Dancing. Music. Poetry. Many performers had traveled a long distance for the occasion. The assembled scientists and other guests had come from all over the world. And in the center of it all the enduring image I leave you with: Yau, beaming with joy, soaking up every moment, his love of people and his zest for life lighting up the room.