

**A Day at the University of Texas at Austin: Sort of a Homecoming for me**  
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**Preamble: Why the visit?**

2004 is the second year of **SPRING** (Strategic Partnership for Research in Nanotechnolo**Gy**), a program where scientists from four universities – UT Austin, UT Dallas, Rice University and UT Arlington – and the Materials and Manufacturing Directorate of the Air Force Research Laboratory at Wright Patterson Air Force Base in Dayton Ohio, initiated a nanotechnology research and development excellence program. With strong and sustainable support from the Texas congressional delegation, especially Senator Kay Bailey Hutchison, this collaboration in FY03 and FY04 received \$16 Million from the Federal Government.

In addition, a spin-off collaboration was initiated by the inclusion of two UT System campuses near the border: UT Brownsville and UT Pan Am. This project is called Nano@Border.

Administratively, SPRING has an executive committee. This committee is charged with dealing with the overall collaborative issues. Members of this committee are the four Vice Presidents of Research and an Air Force representative. They are:

**Ron Elsenbaumer**, UT Arlington  
**Da Hsuan Feng**, UTD  
**Jordan Konisky**, Rice University  
**Juan Sanchez**, UT Austin  
**Richard, Vaia**, Air Force Research Laboratory

Chairmanship of the committee is rotated annually, and this year, I am it! In this capacity, the chairman is *de facto* the “unofficial spokesman.” Therefore, to carry out this duty with credibility, I wanted to be as educated as possible about the nano-landscapes in various universities. Hence, when Paul Barbara, a good friend and the director of UT Austin’s Center for Nano- and Molecular Science and Technology (CNM), a major component of UT Austin’s participation in SPRING, invited me to visit and meet with various individuals in UT Austin, who in one way or another are associated with SPRING, I went gladly and enthusiastically!

UT Austin is perhaps one of the most massive universities in the United States. Some 51,000 students work and learn on a campus of about 350 acres. Even though I have visited the campus numerous times in the past three years, for various reasons, this was

the first time I was there to meet with the nano-folks on a one-to-one basis. Also, UT Austin is so large, even in just its nano-related activities, that it really requires multiple visits to gain an appreciation of its depth and breadth.

And that is a good thing!

I should mention also that every time I go to UT Austin, I have a home-coming feeling. This is because in 1974-76, I was a postdoctoral fellow in the physics department, with the late Professor Taro Tamura and Professor Takeshi Udagawa as my mentors. In fact, some of the spaces now occupied by CNM laboratories were that of the Center for Nuclear Studies, a center with which I was affiliated. Walking in CNM gave me an eerie feeling of the past. I was really pleased to meet with the two persons I had scientific interactions with 28 years ago, Takeshi Udagawa and Peter Riley (now associate dean of the College of Science).

### **My schedule of the day**

From 9 am to 2:30 pm, Paul provided me with a full and exciting schedule.

I met with two of the deans who are most closely associated with nanotechnology on campus. They are:

Dean **Mary A. Rankin**, Dean of the College of Natural Science  
Dean **Ben Streetman**, Dean of the College of Engineering

I also met with the following individuals:

**Dr. Zhen Yao**, Assistant Professor of Physics. Attending college at the young age of 15, Zhen was one of the “youth class” in China’s prestigious University of Science and Technology. (<http://www.ph.utexas.edu/faculty/yao.html>)

**Dr. Alex de Lozanne**, Professor of Physics  
([http://www.ph.utexas.edu/faculty/de\\_lozanne.html](http://www.ph.utexas.edu/faculty/de_lozanne.html))

**Dr. Don Paul**, Ernest Cockrell, Sr. Chair in Engineering and Director, Texas Materials Institute. Don is also a member of the National Academy of Engineering (there are 41 of them in UT Austin)  
<http://www.che.utexas.edu/>

**Dr. Al Bard**, Norman Hackerman-Welch Regents Chair  
Director, Laboratory of Electrochemistry. Among his mountain of honors, Al is a member of the National Academy of Science (there are 12 in UT Austin), and an honorary doctoral recipient of the Weizmann Institute of Science in Rehovot, Israel.  
(<http://www.cm.utexas.edu/bard/CV.html>)

**Dr. David Vanden Bout**, Associate Professor of Chemistry. David is a recipient of the prestigious Alfred Slone Fellowship.

(<http://www.cm.utexas.edu/faculty/VandenBout.html>)

### **Personal Observations**

First: nanotechnology and nanotechnology-related research activities are ubiquitous in the College of Science and the College of Engineering. Roughly speaking, there are some 80 faculty members in these two Colleges that “practice” nano-like activities. From what I can gather, the deans of these two colleges serve as the “dual reporting chain of command” for the Texas Materials Institute (TMI), which coordinates all academic and research activities in these two colleges. The director of TMI is Don Paul. Within TMI is the Center for Nano- and Molecular Science and Technology (CNM). According to CNM’s website (<http://www.cm.utexas.edu/faculty/Barbara.html>), there are 74 faculty members from the two colleges covering disciplines from pharmacy to electrical engineering.

Second: UT Austin has a Microelectronics Research Center (MRC) within the College of Engineering. Although the emphasis of this center is primarily semiconductor and semiconductor-like research, I would not be surprised that some of that will spill into the nano-realm.

Third: Both deans are very knowledgeable about SPRING. For sure, they are very supportive. They also would like to explore ways where UTD and UT Austin can find other channels for collaboration. I walked out of their offices feeling “warm and fuzzy!”

Fourth: The researchers I met with in physics and chemistry were but a small cross section of the total nano-package of UT Austin. In discussing with them, I can tell that they all are excited, sometimes with healthy caution, about how they see SPRING progressing down the road and how it could benefit Texas in general. “Do not over sell” was one of the best comments I heard from one of the faculty.

Fifth: Everyone agreed that SPRING should be and can be a major catalyst for pan-Texas nanotechnology activities. To this end, we need to develop even more personal relations and scientists must have more interactions! Everyone was extremely pleased to learn that right after Election 2004, in November time frame, we will have the 2<sup>nd</sup> SPRING conference. Since 1<sup>st</sup> SPRING conference was held in Austin, and was extremely successful, 2<sup>nd</sup> SPRING organizers need to work even harder – if that is possible – to ensure that it is all encompassing as well as high scientific quality.

I will try to be at Rice and UT Arlington soon.

Stay tuned.