

History of the Tulane Department of Physics and Engineering Physics 2003 – 2009

Jim McGuire
Department Chair

In the decade before hurricane Katrina struck on August 28, 2005 our physics department had around 10 faculty members, 2 staff members, 20 or so graduate students and some 30 undergraduate physics majors. A credible research program had been developed since the early 1980's, when research had been at a low. The department was known for good teaching. Some conflicts between a research active and a non research active group had largely healed by 2000 following retirement of most of the non research active faculty members. Around 2002 James Maclaren took over as chair of physics from John Perdew. Within a year or so, Prof. Maclaren became Associate Provost (and later the first Dean of the post Katrina Newcomb-Tulane College).

In 2003 I reluctantly agreed to become chair of physics, a job I did not think I would like. Ulli Diebold and I talked about which of us should do the job. I thought her research and career had more promise than mine, so I lost. Reluctantly I began to use the chair's office in the department office suite, an office unoccupied for over 15 years. I asked around about what a chair could do. Both Bill Alworth, chair of chemistry and Ken Muneoka, chair of cell and molecular biology were helpful. Some of the most useful advice came from Walter Kohn, the founder of the successful Kvali Institute in Santa Barbara, California. Walter, a Nobel Laureate, was a friend of John Perdew, and many years earlier had advised Tulane to retain the PhD program at Tulane. His advice was to find a niche and to develop interdisciplinary programs due to the small size of our faculty, which we did not expect to grow. At a useful APS conference for department chairs, I spoke with Bob Dynes, Chancellor of the University of California System who had served as a physics chair early in his career. He encouraged me to develop group efforts in areas of research with promise for the future. Our department had not done this in the past. The Dean considered us "a mile wide and an inch deep". Dayle Hancock, our lab supervisor, convinced me to hold a physics retreat to talk about a variety of issues under the headings of research, teaching and other. Dayle arranged a room at the New Orleans Aquarium with lots of good food. There were a few good natured complaints about my over use of the "g" word (group). My reply was, "OK, let's use the "f" word". So we talked about focus areas instead. Out of this came the our strategic plan. By the way, I had tried to promote Dayle to a position called "Professor of the Practice". I was repeatedly turned down. Dean Soufas then hatched a plan to expand the use of Professor of the Practice.

At this point in time we had counted as success the widely cited research of John Perdew in density functional theory, the expanding program of Ulli Diebold in surface science, the successful work of Wayne Reed in polymer science with some interesting local industrial implications and emerging programs of our younger faculty Zhiqiang Mao in low temperature physics, Fred Wietfeldt in cold neutron physics and a young theorist Lev

Kaplan. Dan Purrington was keeping the astronomy observatory open (moved to the roof of Jones Hall from a charming little building that was in the way of the building plans of the School of Business). Frank Tipler was gaining notoriety for books he was writing. George Rosensteel was deep into applications of group theory in nuclear physics. And our reputation as a good teaching department was growing. Staffing issues presented an ongoing challenge. Our Executive Secretary, Teresa Parker, was working 70+ hour weeks.

A couple of days after our second physics retreat, Katrina struck. We evacuated Tulane, as we had done every year or two before when a large hurricane threatened, typically taking what we needed for four days or so, and finding a relatively safe place to stay. I took a first aid kit, a couple of bottles of water, a flashlight, a portable radio, a few clothes, my cell phone and I happened to grab my laptop computer. This time was different. The levees protecting New Orleans failed. 80% of the city was flooded. We fled from one motel to another to another. Cell phones failed. It was fortunate that I had my computer. But the Tulane email system went down and did not come up for months. My portable radio worked. And then blogs sprang up. My wife helped me set up a new email address. News filtered in. Tulane was closed at least for the fall semester. The campus was protected by armed soldiers and we were advised we were forbidden to return to our offices without being accompanied by a Dean. A physicist from Illinois managed to find the phone number of my motel. He offered to take in all the undergraduate Tulane physics students. I had no way to contact them, or my staff, my faculty or Tulane administrators. Eventually I got through to a few, including our secretary, Teresa. Then Lev Kaplan got through with contact information for almost all my faculty. I asked each professor to account for each person in his or her group. Thankfully, all active members of our department were safe, even the graduate students who had arrived from foreign countries but had yet to take a class at Tulane. Some research groups had already resettled at host institutions including Rice, Rutgers, University of Massachusetts and NIST. Tulane President Scott Cowen and his senior advisors had managed to get to safety in Houston. Incredibly, salaries were paid. We were asked to prepare to open in January. I was asked to schedule fall classes for the next spring. I did my best from memory. After several weeks my family and I were able to return to our new home in Mandeville, across Lake Ponchartrain from New Orleans. Two months earlier we had moved from a home in New Orleans that had filled with 6-8 feet of water and took over two years to repair. I began to get calls from colleagues, although many were unable to find me for several months. I had offers from at least eight institutions to come to work until Tulane reopened. I did go to NIST for a few weeks to work with Charles Clark. On campus only emergency power was available from large generators for a couple of months. The campus remained closed, secured by soldiers.

In November some essential personnel was allowed to return. I came into the office. Percival Sterns Hall, the home to physics, escaped major flooding, but mold was a problem. I worked from home and did my best to communicate with other people in physics. Non essential staff were released from Tulane. Carol Gaudin, a secretary who had been with physics for over 20 years, left. And we learned that Karlem "Ducky" Reiss, an emeritus physics professor who had served Tulane for well over 50 years, had

died during evacuation immediately following Katrina. In December it seemed improbable that we could open for the spring semester in January. We scheduled a teaching overload. And in January we opened. Over 90% of the undergraduate students at Tulane returned. Unlike many other parts of the city, Tulane was largely spared. Xavier and Dillard Universities were hard hit as was the University of New Orleans, but they all opened. Although it felt six months out of phase, the Spring 2006 semester was relatively normal. We were asked to teach an extra “lagniappe” semester in about eight weeks for the first half of the summer of 2008. With some minor grumbling and ignoring some requests of the administration for extra teaching, we finished the 2005-6 academic year. While the entering class of fall 2006 was unusually small, we were pretty much back to normal the next year, except for some major changes in the academic structure at Tulane.

During the aftermath of Katrina Tulane had been reorganized. The Graduate School had been eliminated. A majority of the engineering departments had been eliminated as had a sports department. A number of liberal arts departments lost their PhD programs. Newcomb College for women was combined with Tulane College for men. Tulane was leaner. Some faculty and deans lost their jobs. Others left. Fortunately, our only faculty loss was Dayle Hancock, who moved to Houston to be with his relocated family. But we were moved from the old College of Liberal Arts and Sciences to the new School of Science and Engineering. Only two departments of engineering had survived the Tulane Renewal Plan following Katrina. Engineering at Tulane was thin, although science had survived large cuts. The monthly meeting of department chairs had a different feel. Dean Altiero told us we were heads (serving at his pleasure) and not chairs (serving at the pleasure of the faculty). And this Dean liked strategic plans. He wanted to expand. He suggested that we might start a program in Engineering Physics as well as a 3+2 program with possibly Vanderbilt and Duke, where a student could get a physics degree from Tulane and an engineering degree from the partner institution in five years. He and the President thought they could build using the pre-Katrina physics strategic plan with some changes. The Dean talked about expansion for us, possibly to twice our pre-Katrina size or more. But the plan was to put engineers in the same department as physicists.

It occurred to me that no one else was trying to combine science and engineering in a single department. I asked a couple of senior people I knew, including Dan Kleppner at MIT (another long time friend of Tulane), what they thought of the idea. The general reaction was, “you’re trying to do WHAT?”.

Dean Alterio and I did a lot of talking. I talked a lot with faculty. All liked the idea of expanding, but some were more interested in science than engineering. But a number were enthusiastic about bringing in engineers. The dean reduced the teaching load for research active faculty (those with grants) from three courses per year to two. The research active faculty liked that. Ulli Diebold was given the Yahoo Chair in Physics. We began to hire people for full time teaching and some staff work as Professors of the Practice (PoP), the new title we had fought to open up before Katrina. We hired Jerry Shakov and Tim Schuler as PoP’s. Lev Kaplan put together undergraduate degree programs in both Engineering Physics and a 3+2 program (renamed Dual Degree

Engineering Program to calm some unhappiness from some engineers who felt that 3+2 indicated that Tulane was weak in engineering). We hired Norman Horwitz, an engineer, as a PoP to develop our Senior Design Project course, at that point the only course actually required by ABET, the engineering accreditation board. We had useful help from a number of engineers. We began to understand that engineers and scientists have different cultures. Professor Walker in engineering publicly offered a bet that all the incoming undergraduates would take Engineering Physics over Physics. More students came into ENGP than we expected. Eventually we did get a PHYS major. Technically I won the bet. But Cedric Walker had made his point. ENGP was more popular than we expected. Tulane had honored its pre-Katrina commitment to hire someone in the focus area of surface science. We hired Daeho Kim. Zhiqiang Mao designed a PhD program in Materials Engineering and we searched for a well qualified candidate to fill the Jung Chair in Materials Engineering. We named people to three positions as Research Assistant Professor. And we hired more Adjunct Professors. We also hired Eleanor Berault as an Administrative Secretary and Teresa Parker was promoted to Office Manager. After five long and hard years, difficult problems with office staffing issues had eased.

In early 2009 we voted to change our name from Physics and Astronomy to Physics and Engineering Physics (PEP). The economic crisis, hitting in the fall of 2008, caused a freeze on hiring. Nevertheless we were permitted to continue our search to fill the Jung Chair in Materials Engineering and we were permitted to increase the number of Teaching Assistantships to pay our graduate students from 14 to 16. We formed an Advisory Board beginning with four engineers, two physicists and a chemist.