

## Memo from the Chair

It seems appropriate, given the incredible events of the past year, to begin this column with the sincere hope that all members of the MSM-UMR physics family have been safely out of harm's way during the often frightening events that have occurred since the morning of September 11, 2001. Our sympathy goes out to all of the victims of that terrible tragedy, as does our support for all those who are striving to make the world safe from future acts of the same kind. I am proud to report that as part of that effort, researchers at UMR are working hard to contribute to programs that will enhance the country's security. Under the direction of Vice Provost for Research **Wayne Heubner** (BS, '82, PhD '87), UMR faculty have proposed numerous studies that would enhance critical technologies used by the United States to detect and thwart terrorist attacks on domestic targets. Physics faculty members **Greg Story** and **John Schmitt**, for example, have proposed a new class of ultra-sensitive trace element detectors that would use multi-photon absorption and ionization of particles entrained in supersaturated vapors. Their method, which has already been demonstrated with atomic particles at previously undetectable levels of dilution, would allow for real-time detection of compounds or molecules associated with explosives, nuclear devices, perhaps even biological hazards.

This program represents one of the many fascinating things going on in the department, some of which you can read about in this issue of **Matter 'n Motion**. As department chair, I am very proud to head one of the most active research departments on the UMR campus. Every day I see, in numerous ways, how our research programs significantly enhance our department's educational effort, of which we are also very proud. As many of our alumni know, the department has always strived to include undergraduate students in its research activities. Most of the research contracts and grants that the department receives from government organizations, such as the National Science Foundation and the Department

of Energy, include funding that allows undergraduate students to participate in the activities of UMR faculty researchers. This opportunity for students, many right out of high school, to participate in research at the forefront of a given scientific discipline, is simply unobtainable in many schools and colleges. At UMR over 60% of physics undergraduate participate in research projects with UMR faculty members at some point during their four years here. All our majors participate in independent research in our capstone Advanced Laboratory course, taken by physics students in their senior year. Often these projects result in publications, or in prizes won in undergraduate research competitions, such as the one sponsored by the Missouri Academy of Sciences, where UMR students have a sparkling record of achievement.

This level of undergraduate research participation is responsible, I think, for the incredible success that our undergraduates have had obtaining great positions after graduation, either in industry or in graduate school. In the last two years, for example, UMR graduates who have not gone on to graduate school have entered the work force with reported starting salaries averaging over \$55,000 per year, higher than the national average of \$42,000, higher even than the national average for virtually all engineering disciplines. Our majors who do go on to graduate school find that if they work hard they can get into the very best graduate schools in the world. This past year, UMR graduate **Brett Maune** (BS '01) went to Caltech, **Sean McKinney** (BS '01) went to the University of Illinois-Urbana Champaign, and **Josh Zirbel** (BS '01) went to work with Nobel Laureate Carl Wieman at the University of Colorado. The schools where our graduates were accepted, but didn't go, looks like a list from US News and World Report: Stanford, Harvard, MIT, Yale, UVA, Rice, Cornell, and others. Of course, as many of our alumni also know, cutting edge research can be very expensive. In a time of economic downturn, with the state holding back big chunks of our budget, we are forced to rely more and more on contributions from friends and alumni to help make up the difference - so that *we* can continue to make a difference in the lives of the students that come through our doors. To all who have contributed in the past, I offer sincere appreciation for the support you have provided over the years. It helps enormously to have partners in our endeavor who share our vision of what a quality education in Physics can do for those who achieve it.

- Paul E. Parris



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### Hughes Zenor Remembered

We were saddened to hear of the passing of Professor Emeritus **Hughes Zenor**, who died earlier this year, in January 2002. Zenor, who had been a member of the UMR faculty since 1960, had recently moved to Alabama to be closer to his son, **Phil Zenor**. He is survived by Phil, and sons **John J. Zenor** and **Hughes Earl Zenor**. Before the move, Hughs had a reputation as the department's most devoted attendee of the weekly "Frontiers in Physics" colloquium series. A memorial resolution, which is being prepared for presentation at the next UMR General Faculty Meeting, will appear in the next edition of **Matter 'n Motion**.

