Faculty Notes

Gerry Wilemski received the 1999 James H. Crowdle Award from Canisius College in Buffalo, NY. The award is given to alumni of that institution’s chemistry department who are deemed to have made significant contributions to science. Wilemski was only the seventh recipient in the 30 years since the award was initiated. He was cited for his research contributions in thermodynamics and statistical mechanics.

Jin-Song Li, a postdoctoral fellow working with Gerry Wilemski, proudly announces the birth of his Albert J. Li on May 7, 1999.

Ron Bieniek returned to UMR this past Fall after spending a year-long sabbatical leave of absence in Europe. He collaborated with scientific groups at the Laboratoire Aime Cotton near Paris, at the Max Planck Institut fur Quantenoptik near Munich and at the Universita di Firenze in Florence. He admits that there were also non-scientific pleasures associated with the extended stay. Some highlights included taking Swiss friends to a country-western Halloween party at the Redneck Country Hall in Munich, dancing with his lovely wife Louise at the Emperor’s Ball at the Imperial Palace in Vienna on New Year’s Eve, and seeing a total solar eclipse just north of Paris. He also became a grandfather when his daughter Michelle gave birth to Luke, whom he “objectively” claims is the most handsome and intelligent of toddlers.

CLOUDS Project at CERN

Investigators have found that there is a correlation between cosmic rays and cloudiness on the Earth. The correlation shows not only the galactic cosmic ray modulation by the 11-year solar activity cycle but the long-term variation.

Obviously how much solar radiation reaches the ground and thus the average temperature of a location on Earth is directly connected with the number of clouds in the atmosphere. Thus there is a possibility that cosmic rays influence the average temperature of the Earth and the words “global warming” immediately come to mind.

The scientific question, however, is not whether the correlation exists but whether one can discover good science that connects the flux of cosmic rays to the formation of clouds on the Earth.

UMR’s Cloud and Aerosol Sciences Laboratory (CASL) is well known for its work with cloud chambers and aerosols. Thus this last summer CASL was contacted by a group leader at CERN in Geneva, Switzerland who, in June, came to UMR to visit physics Prof. John Schmitt and learn about expansion cloud chambers. Schmitt was subsequently invited to join the group at CERN called CLOUDS who are putting together experiments that will explore how cosmic rays interact with the atmosphere and may produce cloud condensation nuclei that in turn produce increased cloud cover. For CERN the group of 30 is a small one but very workable, with Schmitt the only member from the USA.

The basic experiments will use the beam from one of the accelerators at CERN to simulate the cosmic ray flux on the atmosphere. The experiments will take place in a Wilson expansion cloud chamber; possible mechanisms to be explored are the enhancement of gas to particle conversion and the interaction with atmospheric aerosols by the beam. The principal detector is a Wilson expansion cloud chamber.

Dr. Schmitt, with support from NSF Particle Physics, attended a group meeting in December in Helsinki, Finland for the drafting of the scientific proposal and stopped at CERN in Geneva on the way back to the USA. At CERN he worked with the engineering people on the design of the chamber for the experiments. UMR-CASL is also working on experiments that will use its extensive aerosol expertise to characterize what is produced in the chamber by the beam.

Future CLOUDS chamber for studies of cloud condensation induced by cosmic rays