



Fermilab Minority Physics Program Has First Ph.D.

Roberto Vega is the first participant to receive a Ph.D. from Fermilab's Summer Program for Minority Physics Students, administered by the Lab's Equal Employment Opportunity Office. As a participant in the Fermilab program, he also received a Graduate Fellowship from Universities Research Association, Inc., which financed a portion of his graduate education. The Lab recently awarded Vega, who received his degree in particle physics from the University of Texas at Austin, a plaque in recognition of his achievement.

Roberto's road to success, although long and difficult, was also challenging and exciting. "In Brooklyn, where I grew up," he recalled, "it was survival of the fittest. If you studied, you were a sissy - you weren't supposed to do your homework, you weren't supposed to study. And even though I got through high school, most of my teachers didn't think I would amount to much."

For three consecutive summers, Roberto participated in the program at Fermilab. "In 1983, the first summer I was in the program, I worked on a variety of projects. For about three days, I did what they called cutting cables. I thought that it was about the crummiest job you could do. At the time, I was a little upset that I had to do it, but I later realized that

somebody had to do it and I wasn't really trained to do anything else." In 1984, Roberto worked with Rocky Kolb, co-head of the Astrophysics Group, on theoretical research about monopoles and very massive particles produced in the early Universe. In 1985, after he began his doctoral program, he primarily worked on high-energy neutrino interactions with Chris Quigg, then Head of the Theoretical Physics Department.

"As a part of the program, I felt that there were people who believed I could achieve my goals," he said. "It really helped to have people who believed in me." One person in particular, Frank Cole, who for many years served as co-chairman of the summer program committee, inspired Roberto to succeed. "I

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A Note to Fermilab Speakers...

In order to establish a comprehensive record of Fermilab activities, *Fermilab Report* will begin publishing titles, dates, and locations of colloquia and major talks given by Fermilab staff *outside* Fermilab in addition to the current listing of talks given at Fermilab.

Staff members engaged in these activities are encouraged to send the pertinent information to *Fermilab Report*, MS 107, so that we can acknowledge your activities.

Accelerator School Cites Kapchinskii, Sessler, and Teplyakov

The US Particle Accelerator School has honored Andrew M. Sessler of the United States and, jointly, Ilja M. Kapchinskii and Vladimir A. Teplyakov of the Union of Soviet Socialist Republics for their contributions to the development of accelerator physics and technology. Sessler is now Senior Scientist and was formerly Director of the Lawrence Berkeley Laboratory. Kapchinskii is Professor of Physics at the Institute for Theoretical and Experimental Physics in Moscow, and Teplyakov is a Scientist and Deputy Director of the Institute for High Energy Physics at

Serpukhov. Since its inception in 1981, the Particle Accelerator School's annual program has been sponsored by the U.S. Department of Energy, the National Science Foundation, and major U.S. high-energy physics laboratories, including Fermilab. This year's awards were supported by the Universities Research Association, Inc., the Continuous Electron Beam Accelerator Facility, the Houston Area Research Center, Intermagnetics General Corporation, Varian Associates-Vacuum Products Division, and Westinghouse.

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Survey Spots 205 Species of Birds at Lab

We ventured out to the prairie, just one of several areas Vicki Byre, an ornithologist at the Chicago Academy of Sciences, studies at Fermilab. Equipped with powerful binoculars, note cards, check lists, and a well-trained ear for bird calls, Vicki scanned the ground, the trees, and everywhere in between to find different species of birds.

"The reason I had the idea to do a survey out here is rather complicated. I was just finishing up my master's thesis under Dr. Betz, the founder of Fermi's prairie restoration project, on breeding-bird surveys. About that same time, Margaret Pearson, Manager of Fermilab's Public Information Office, contacted the Academy; she was looking for people interested in conducting research projects at Fermilab because they were to be designated a NERP (National Environmental Research Park)." Vicki thought that a Fermilab bird survey would complement her graduate work, and so she submitted a grant proposal to the Department of Energy, which awarded her a research grant. She explained that the grant is administered through Fermilab as part of the NERP program, although Fermilab isn't officially a NERP.

Her formal three-year survey began in late February. Since then, she has spent an average of 15 to 20 hours each week in observation, for a total of 330 hours. "A physicist and first-rate birder at the Lab, Peter Kasper, gives me hints about where to find some of the birds I've seen.

"I'll show you a willow flycatcher's nest here in the dogwood," she said as we approached the water's edge. "It had three eggs," Vicki explained as we peered into the tiny nest, "but only one of them hatched." She thought that an animal ate the other two eggs.

Vicki's list of Fermilab birds shows that in 1987 and 1988, 205 species of birds passed over or used the variety of habitats at the Lab for feeding, breeding, or resting. She commented that "This number is pretty remarkable because only 308 species of birds are on the official Illinois check list." Moreover, she has confirmed breeding for 61 species, and she predicts that by next spring, her list will include at least 210 species, 70 of which might be breeding. She also explained that "Fermilab is really important as a migration stop because a lot of these birds have few areas to stop and eat as they migrate."

In the distance, we saw several great blue herons along the shores of marshes within the circle of the Main Ring. "They have nesting areas, or heronries, right on Lab grounds. These are important places because herons can safely come and eat." Great blue heron nesting areas are relatively rare in northern Illinois. But at Fermilab, they are becoming more numerous; to date, Vicki has found 38 nests and approximately 50 nestlings.

She spotted another heron, the black-crowned night heron, which is on the Illinois endangered species list. She said that 10 to 15 of them regularly use marshes and ponds at the Lab. "As you can see, the Lab serves a good purpose by providing suitable habitat for wildlife like these herons."

Vicki is particularly interested in finding and monitoring rare and endangered species of birds, such as the black-crowned night herons, at Fermilab. Just this year, she recorded 15 species of state endangered birds on site. Two of these species are also on federal endangered species lists: the peregrine falcon and the piping plover. "I believe that it is a first DuPage County sighting of the piping plover, at least in recent times."

According to Vicki, other nice finds at the Lab include an American redstart nest, several pairs of yellow-breasted chats, and the rare Bell's vireo. "I found a Bell's vireo nest with young, and there's only one other place in DuPage County where I know there was a nest this year," she said. Another rare species, the upland sandpiper, "is really the biggest success story as far as the Lab is concerned. It is a state endangered bird that actually breeds on site." In early June, Vicki saw only one pair, but since then, she's regularly seen six adults and two juveniles on territories. "Some of these are birds that people would drive a long distance to see because they're becoming more and more uncommon."

Vicki is always surprised by the species of birds she finds at the Lab. "There are big stretches of land where nobody goes, and that's where I'm finding unusual things." For example, one of the new species she found this year, the dickcissel, hadn't been formally recorded on this site until this year. "In early June, I found one singing male and I was very excited," Vicki recalled. "By the next week, I found 34 males. They were everywhere. I found a nest and

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Benefits Notes

Health Chicago and Maxicare Illinois HMO

Effective October 1, 1988, the Universities Research Association, Inc., contracts with Health Chicago and Maxicare Illinois will terminate. Participants in those two HMO's will have to transfer to another HMO or to the Connecticut General medical plan at the next open enrollment, which is scheduled for mid-September. Information regarding alternatives and HMO meetings will be mailed to your mail station as soon as possible. Updated provider listings will be available at the HMO meetings and from the Benefits Office in September. - **Paula Cashin**

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Sessler was cited for his contributions to the understanding of particle-beam instabilities. Kapchinskii and Teplyakov were cited jointly for their invention of the radio frequency quadrupole. Each of the two prizes is \$2000. The 1988 awards were presented at a ceremony held on the evening of Wednesday, July 13, 1988, at Snowmass, Colorado, during the Summer Study on High Energy Physics in the 1990's organized by the Division of Particles and Fields of the American Physical Society.

The Accelerator School gives two prizes each year. Winners are chosen on a competitive basis. The 1988 Prize Committee members were Roy Billinge, James E. Leiss, Claudio Pellegrini, and John Rees. The School attracts scientists and students in physics, engineering, and related disciplines from all over the world. They gather for two to four weeks each year. Basic and advanced courses on the theory and operation of particle accelerators are offered to those who attend. The School serves an increasing need for more and higher education for those who conceive, design, operate and use particle accelerators. This need for the School has arisen because accelerator science itself has grown into an interdisciplinary branch of physics integrating advances in electronics, cryogenics, and other technologies to produce increasingly varied and specialized instruments in the service of science and society.

Melting point of Dippity-do: **122°F**

Reported cases of toothbrush swallowing in Durham, North Carolina, since 1981: **4** Cases in all of medical literature: **31** - *Harper's Index*

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looked up to him as a well-known accelerator physicist - he impressed me; he talked to me; he was interested in me and that I did well. And every time I had a problem and called him up, he would always help me." For Roberto, Frank Cole's support was tremendously important because "I thought about changing from physics to something less frustrating, but Frank always encouraged me to stick it out."

While he was at Fermilab to receive his award, Roberto wanted to make time in his busy schedule to meet with students in this summer's program. "I wanted to talk to the current students because I was in their place three years ago. I know that a lot of them have an attitude of, 'I'm not going to stay in physics because, number one, it's too hard, and number two, it's not financially rewarding on a large scale.' But I wanted to get them to see that there are other, very personal compensations in the field. Physics can be very exciting and money will never buy that."

For his masters degree at Georgia Tech, he worked on integrated optics, not particle physics. "What happened was that I really got into particle physics by accident. I didn't even know particle physics was a field until a friend of mine, who was planning to pursue a Ph.D. at the University of Texas at Austin, started talking to me about all of these different particles and quarks and some of these other weird names used in particle physics. I was amazed that there was a whole field that I didn't know anything about." Roberto found this very intriguing and decided to continue his education at the University of Texas.

Financially, Roberto was reasonably secure at Georgia Tech because they paid him a stipend and covered his tuition and fees. "But when I applied to the University of Texas, there were so many applicants, and the competition was so very, very intense, that they said I could attend, but without a fellowship."

Discouraged, but determined to achieve his goal, he took out a \$5000 loan and went to Texas. "I was married and had one son, so I really took a big risk. But after a semester, I received the fellowship from Fermilab, and the university awarded me a graduate fellowship because I did well first semester. Looking back, I was a little crazy to take off for Texas, but

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Wednesday Night Bowling, Anyone?

There are a few openings left on the Fermilab Wednesday Night Bowling League. Wednesday Night bowlers knock 'em down for 32 weeks at Bowling Green starting at 5:45 p.m., September 7, 1988. This year, the league will be sanctioned. For more info or to sign up and reserve your place, call Ed LaVallie, ext. 3138; Pat LaVallie, ext. 4365; Jose De La "O" at ext. 4461; Nancy Shanahan, ext. 3494. Dign up as an individual or bring your team (875 maximum average per team). - **Nancy Shanahan**

Barnstormers' Biplane Bash

The Fermilab Barnstormers will host their annual Radio-Controlled Biplane Contest on Saturday and Sunday, August 27 and 28, 1988. The event will be held at the Barnstormers' flying site, north of the Pioneer Cemetery. There will be models representing everything from basic biplane trainers through detailed scale models of full-size biplanes. Pilots will compete in classes determined by their experience levels from novice to expert. Pilot registration opens at 8:30 a.m. and flying begins at 9:30 a.m. both days. Spectators are welcome and refreshments will be available. - **Jim Zagel**

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I think one of the major reasons it worked out is because of the support I received from Fermilab."

Based upon his experiences so far in the field, Roberto offered his views on physics and physicists: "Physics can get pretty complicated, but usually it's because physicists complicate it. For example, you can say a lot of things in physics more simply without using math. Furthermore, physicists used to be a small, close-knit group that rarely communicated with people outside their community. But the physics community is changing; they want to let people know what's going on."

Roberto's future should be bright. With guarded optimism, he felt that "My ideal future would be a job at some kind of university that has a graduate program where I could teach and do research. I don't know if that will happen, but I hope it does."

- **Kevin A. Brown**

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actually banded the young, so there's a chance that we could trace those if they come back next year."

On the days she's not at the Lab, Vicki works with the peregrine falcon re-introduction project at Illinois State Beach Park. She also monitors blue-

birds at the Morton Arboretum in Lisle. "My main purpose this year at Fermilab is to find as many different species of breeding birds as possible. Then I can set up some good baseline data so that in years to come, I will know if the population has changed or not." In the second and third years of her study, she plans to concentrate on specific habitats, such as the grasslands and prairie restoration areas. She hopes that in the future, when the prairie is truly re-established, she can come back and do another complete census to see how and if it has changed.

Vicki is eager to expand her work. "I have five or six other projects that I would like to begin after this one. I would definitely like to zero in on a of couple species and study them more closely - for example, the bobolinks are interesting because they have some very strange territorial and breeding displays. The male can attract five or six females, and we really don't understand how he can decide which one or two he's going to keep."

In addition to bird research, she felt that it is important to study everything, including worms, spiders, insects, fish, reptiles, mammals, and soil, because Fermilab is in an ideal ecological setting. "The Lab is full of different habitats - restored prairie, huge areas of old brushy fields, several nice wetlands, savannah, and some pretty good woods. We're trying to establish it as an important environmental area; a place with 'high-quality' species requiring certain types of habitat that can't be found just anywhere." - **Kevin A. Brown**

Tom Jurgens didn't come in third in his age group in the Chicago 10K Run, as stated in the last issue of *FermiNews*. He came in first.

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