ASK A SCIENTIST
ERIK RAMBERG

TUESDAY
11:00-11:30AM

Erik Ramberg can talk about almost anything. A physicist with a gift for inspiring students and making complex subjects interesting and comprehensible to the public, he kicks off our Ask-a-Scientist program at SC09.

In addition to extensive knowledge of experimental high energy physics (PhD from the University of Maryland,1990), Dr. Ramberg is conversant on the details of the Fermilab accelerator complex, has a solid understanding of biochemistry and is well-read on the data and arguments surrounding climate change.

In his “day job” he’s designed and built ultra-fast time-of-flight detectors and manages a major test beam facility at Fermilab. Beyond that, he has co-chaired the popular and successful “Saturday Morning Physics” program for high school students for several years, and recently helped start a renewable energy club at the lab.

ASK A SCIENTIST
DHIMAN CHAKRABORTY

TUESDAY
11:30AM-12:00PM

Hailing from India, and from the same high school as Satyendra Nath Bose, the namesake for bosons — particles that typically act as force carriers rather than as matter — Dhiman Chakraborty discovered physics as a boy, and his career path was settled. Earning his PhD from SUNY Stony Brook in 1994, and now a professor of physics at Northern Illinois University, he has contributed to the discovery and continued study of the top quark, which, incidentally, is NOT a boson. He has contributed to many areas of detector development and operations as well as software.

Dr. Chakraborty currently leads a team from his university on the ATLAS experiment at the LHC. He is interested in many science-related issues facing society today, including clean energy and science education. He also thinks about human rights and cosmology, although not necessarily in the same sitting.

ASK A SCIENTIST

ERIC PREBYS

TUESDAY
12:00-12:30PM

Good at math, good with gadgets, curious about what was inside his Etch-a-Sketch, and impatient with rules and bureaucracy — Eric Prebys was a natural physicist even as a young boy. He discovered high energy physics in college, went on to earn his PhD at the University of Rochester in 1990. A decade later, experiments were getting too big for him. He came to Fermilab and switched to accelerator physics, where he headed up the Proton Source for several years. He currently coordinates U.S. LHC Accelerator Research.

Dr. Prebys takes a keen interest in energy issues, and has developed a public lecture on “Free energy scams.” He also visits local schools to give physics demonstrations.

ASK A SCIENTIST

MIKE ALBROW

TUESDAY
12:30-1:00PM

Fascinated by astronomy as a boy back in England, Mike Albrow built telescopes and started his school's astronomy club, later studying experimental particle physics. Since receiving his PhD from the University of Manchester 40 years ago, he has performed research at CERN in Switzerland, at Rutherford Lab in the UK and for the past couple of decades at Fermilab. Currently, Dr. Albrow focuses his attention on finding the Higgs particle, and on developing a new particle detector that can measure the speed of light over a distance of 1 cm. He enjoys visiting schools to talk to students about physics and astronomy.

ASK A SCIENTIST
PETER GARBINCIUS

WEDNESDAY
11:00-11:30AM

Physics and fly fishing — Peter Garbincius can answer just about any question on both topics. (To be clear, Cornell awarded him a PhD in physics.) Arriving at Fermilab in 1976, he was instrumental in establishing the lab's early operations, electrical, beamline, experiment support and alignment groups. Among his most notable contributions are the development of a family of superconducting magnets and installation of the cryogenic systems for the lab's experimental areas.

Dr. Garbincius has held leadership roles in both the experimental research and the accelerator divisions of the lab, while still finding time for the study of charm quarks. He has spent the last decade planning ahead — for a bottom (also called "beauty") quark experiment, for a post-LHC (circular) collider, and currently, for the proposed International Linear Collider.

Dr. Garbincius chairs the Ask-a-Scientist program at Fermilab.

ASK A SCIENTIST

HENRY GLASS

WEDNESDAY
11:30AM-12:00PM

The Apollo moon landings and Star Trek helped spark Henry (Hank) Glass' lifelong interest in science, dovetailing with his natural curiosity about how things work. High school field trips to Brookhaven National Lab offered him glimpses of high energy physics, and set in motion a "strong force" that later drew him into a PhD program at SUNY Stony Brook, working on a fixed-target experiment at Fermilab.

Dr. Glass worked on development and testing of accelerator magnets before switching a few years ago to the Pierre Auger Observatory to study the spectrum, composition, and arrival directions of the highest-energy cosmic rays.

Science education is important to Dr. Glass. He chairs Fermilab's public lecture series, which routinely draws many lay people from surrounding communities to a wide variety of scientific presentations. He also occasionally teaches physics courses at a local community college.

ASK A SCIENTIST
MIKE SYPHERS

WEDNESDAY
12:00-12:30PM

Currently the Assistant Head of the Accelerator Division at Fermilab and adjunct professor at the University of Texas, Mike Syphers specializes in accelerator design and particle beam physics. The Gemini and Apollo space programs of his childhood years —plus an eye-opening chapter on gravity and planetary motion in a high school text book —hooked him on physics. He completed his PhD at the University of Illinois at Chicago in 1987, and spends his days developing new tools for doing experiments that explore the very basic properties of the universe.

Dr. Syphers takes particular interest in the important implications that accelerator-based science has had on society, and often speaks to local organizations and students about Fermilab and science.

ASK A SCIENTIST
DAVID CHRISTIAN

WEDNESDAY
12:30-1:00PM

As a youngster, David Christian dreamed of becoming a paleontologist. His interest in dinosaurs gradually evolved into a passion for discovering ever smaller objects. After completing a PhD in particle physics at Johns Hopkins in 1983, he accepted a prestigious Wilson Fellow position at Fermilab and has stayed on as a staff scientist ever since. He has participated in several experiments, studying phenomena ranging from heavy quarks to new states of matter and developing solid state detectors, and has led an experiment on atomic antihydrogen. Currently he heads the Experimental Physics Projects Department within the lab's Particle Physics Division.

Dr. Christian chairs the committee charged with recruiting talented postdoctoral research associates for Fermilab's accelerator-based experiments.

ASK A SCIENTIST
LEO BELLANTONI

THURSDAY
11:00-11:30AM

Phrightened of physics? Leo Bellantoni, a Fermilab scientist who is not, helped write “Phriendly Physics”, a training program for elementary school teachers who, in some cases, are. At the lab, he studies the difference between matter and antimatter, the underlying causes of inertia, and how to accelerate subatomic particles. He received his PhD from the University of Wisconsin, Madison in 1995. Over the last twenty years he has participated in many experiments, including the collider experiments DZero at Fermilab, and earlier, ALEPH at CERN.

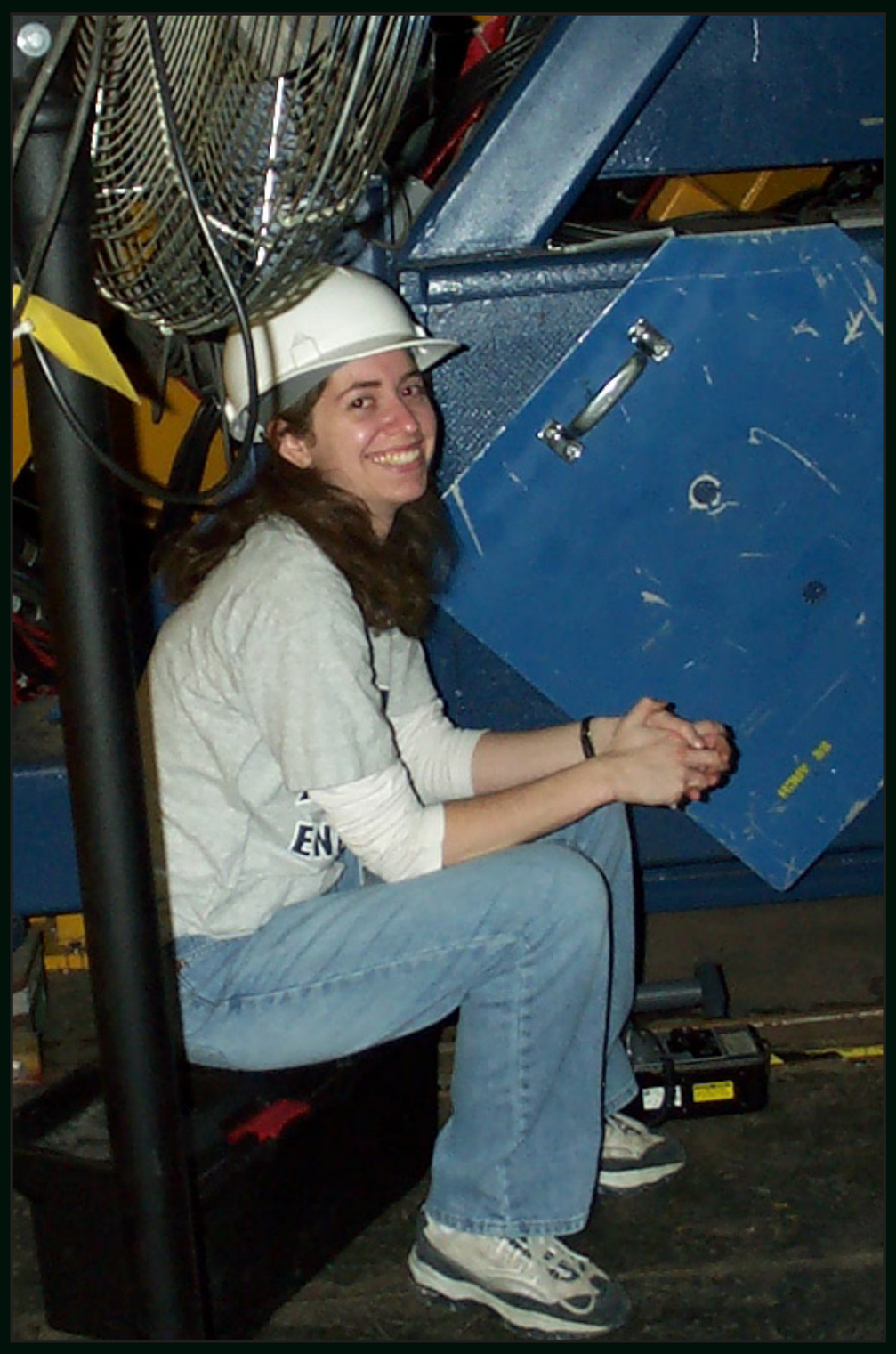
Dr. Bellantoni’s gift for science education and outreach was slower to blossom than his passion for physics. When he was in high school, his mother reportedly told a friend, “I don’t mind you talking with my son about sex or religion or politics. But don’t talk to him about the Boltzmann distribution for polyatomic molecules!”

ASK A SCIENTIST
JENNIFER PURSLEY

THURSDAY
11:30AM-12:00PM

Jennifer Pursley fell down the rabbit hole into the ultra-tiny wonderland of quantum mechanics, where matter seems to obey different rules. Recently equipped with a PhD from Johns Hopkins, she co-leads a search for a heavy Higgs boson at the CDF experiment. Whether or not she finds it, she wants to be around to see whatever next thing will turn our current understanding on its head.

Dr. Pursley wants to increase the representation of women in science and technology. She leads the Women in Science and Technology group at Fermilab and participates in the American Physical Society's Committee on the Status of Women in Physics, which tries to identify and remove factors that keep women from choosing physics as a career. She also participates in outreach efforts to help the public understand how science impacts virtually every major problem we have in the world today.



ASK A SCIENTIST
DAVID HARDING

THURSDAY
12:00-12:30PM

In a freshman physics lab, David Harding found himself analyzing bubble chamber pictures — images of charged particle tracks in a chamber of superheated hydrogen — and he was hooked. Arriving at Fermilab 31 years ago, after studying vector mesons captured by more modern particle detectors as a graduate student at Cornell University, he spent several years studying heavy quarks. Later, he changed his focus to building particle accelerators, which is now his specialty.

Dr. Harding is active in outreach programs and enjoys talking with students and the public about physics. He developed a hands-on demonstration on the physics of sports that he and other volunteers present to students at local schools. And he has a baseball field named in his honor!

ASK A SCIENTIST
SCOTT DODELSON

THURSDAY
12:30-1:00PM

Scott Dodelson channeled his boyhood fascination with baseball statistics and gift for mathematics into a career in theoretical astrophysics at Fermilab. Trained at Columbia (PhD 1988) and Harvard, he studies the connection between the physics of the smallest particles and that of the cosmos.

Dr. Dodelson is the author of the standard textbook in the field, “Modern Cosmology”, and many papers on topics ranging from dark energy to the Big Bang. He was elected a Fellow of the American Physical Society in 2004 for work done in theoretical cosmology. He serves as an editor for several journals and has participated in a congressional astrophysics advisory committee.

Apart from cosmology, he is interested in neuroscience as an area where physicists may make major contributions.