



 Fermilab Friends for Science Education



annual report 2013



**FERMILAB FRIENDS FOR  
SCIENCE EDUCATION**

**ANNUAL REPORT**

2013



P.O. Box 500, MS 226  
Batavia, IL 60510-5011

***<http://fermilabfriends.org>***

***<http://twitter.com/FermilabEd>***



*Fermilab Friends' graphics incorporate an image of one of Robert Wilson's best known sculptures, Möbius Strip. Slicing a Möbius strip lengthwise results in two interlinked loops, an appropriate metaphor for the relationship between FFSE and the Fermilab Education Office: separate, yet tightly linked.*

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May 3, 2014

Dear Fermilab Friends for Science Education:

Thank you for your support of STEM education and for everything you do for the young people that have interest in science and engineering.



*Nigel S. Lockyer*  
*Director, Fermi National Accelerator Laboratory*

A handwritten signature in black ink, appearing to read "Nigel S. Lockyer".

I had the opportunity to visit the Lederman Science Center shortly after becoming director in fall 2013. Although a visiting researcher at the laboratory for over 20 years from the University of Pennsylvania, I never had the reason or opportunity to visit the center. I was extremely impressed with the facility, the people, and the bright friendly atmosphere. The center comes across as a fun place to learn. That may be a key to the success. I learned of Fermilab Friends for Science Education during this early visit.

I believe the record shows the Lederman Science Center has been a model for other institutions and for our sponsoring agency, the U.S. Department of Energy. Over the last decade we have touched the lives of hundreds of thousands of students and tens of thousands of teachers—a wonderful benefit to the nation.

The support of Fermilab Friends for Science Education is more important than ever. The nation has significant scientific and technical challenges ahead if we are to solve the issues associated with energy and climate change, and growth in our high-tech economy. Particle physics attracts the brightest students from all over the world to the excitement of our field. Fermilab is one of the great laboratories and our ability to attract the top students to our region and the U.S. is a major benefit we bring beyond scientific discovery.

The ongoing support of Fermilab Friends for Science Education has anchored our science education program and has permitted us to design new, creative ways to engage our youth in scientific inquiry. The role you play in support of education programs is more important than ever in seeding important initiatives so that STEM teaching can be strengthened and the next generation of young scientists may flourish and help our nation to address its scientific and technical challenges.

The entire Fermilab community is proud of what you do and I appreciate greatly your continuing support.



## FROM THE FFSE PRESIDENT

May 5, 2014

Dear Friends,

In 2013 Fermilab Friends for Science Education completed 30 years of connecting the public and the education community with the unique resources of Fermilab. We invite you to revisit some of our organizational memories captured in the photos shown on the last page of this report.

Looking forward, we now ask, What are the key areas where the Education Office will need a friendly hand of support?

In 2013 Friends celebrated the opening of *Run Like a Proton*, our first outdoor exhibit where students can learn physics kinesthetically. With approval from Fermilab, support from an anonymous donor, support from the Community Foundation of Fox River Valley and also from the John E. Meyer Family Endowment Fund, we look forward to the opening of a second outdoor exhibit this year. The new outdoor experience will allow students, working under the guidance of Fermilab Education Office docents, to investigate the concepts of waves and sympathetic oscillations. It will be completed in the summer of 2014.

Teachers are facing new challenges as they strive to better understand the science and engineering practices spelled out in the Next Generation Science Standards adopted by the state of Illinois. What better place for teachers to learn about them than at Fermilab, where scientists and engineers put these practices to work everyday? Institute Day workshops and further piloting of professional development will begin this year with generous support from our anonymous donor.

This report highlights FFSE-supported programs that are now staples for families and students: the Family Open House, the Family Outdoor Fair and the STEM Career Expo. Schools, teachers and families appreciate the annual program scholarships that FFSE offers for workshop fees, field trip transportation and Science Adventure classes. Your support makes these programs and support possible.

We continue to offer annual members' events such as the tour of DZero and the Tevatron tunnel, which was held in December 2013. We are grateful to Don Lincoln and our DZero and Tevatron hosts—we had an amazing experience. Plans are underway for another memorable physics tour. Watch your e-mail for details.

We are so thankful for the continuing interest and support of our Fermilab Friends for Science Education members. We want to be an organization that involves you. If you have contacts for funding or suggestions for membership or member events, please contact me.



*Susan M. Dahl*  
*President, Fermilab Friends for Science Education*

A handwritten signature in blue ink that reads "Susan Marie Dahl". The signature is written in a cursive style.



# CELEBRATING 30 YEARS: Why they are Friends

## Fermilab Friends for Science Education Mission

Fermilab Friends for Science Education supports innovative science education programs at Fermilab.

Its mission is to:

- Enhance the quality of precollege science education in public and private schools.
- Encourage young people to pursue careers in science and engineering.
- Promote a broader public awareness and understanding of science.

Fermilab Friends for Science Education (originally “Friends of Fermilab”) first sprang to life in 1983 in response to Fermilab Director Leon Lederman’s desire to share Fermilab resources with area teachers and students. In 1989, changes in DOE guidelines allowed for the creation of the Education Office at Fermilab. That office took over management of the programs begun by Friends in the earlier era, but the need for a conduit for private sector funding remained. Friends continued in that role, but also pioneered new outreach offerings and established a few programs of its own, designed to complement programs of the Education Office.

In 2003, the 20th anniversary year, the organization changed its name to Fermilab Friends for Science Education.

In working toward our mission over the past 30 years, we have relied on three groups to help us achieve our goals: Fermilab staff; teachers; and members of the public who value science education. The quotes featured below are from members of each of these groups.

Fermilab physicist **Carl Albright** and his wife, **Cynthia**, have been FFSE members for many years. When asked why, they cite the variety and value of Friends’ programs:

“We have been long-time supporters of Friends because you are able to reach out to many more people than we could individually. Bringing science to the classroom provides teachers with programs that enhance students’ experiences. Teacher scholarships help support teacher development, and that in turn, benefits students.

“Through STEM Career Day and high school student awards you enable young people to open their eyes to science, technology, engineering and math as possible career opportunities.

“Family events and the Lederman Science Center help promote scientific literacy among youth and the community, thus creating more informed citizens.”

The valuable programming, but also the connections forged among Friends, inspire astrophysicist **Brian Nord**:

“One of the reasons I’ve chosen a career in science is to share the excitement and awe I feel about our universe, and FFSE is indispensable in making this happen. As we explore the cosmic web, the universe beyond the firmament, FFSE builds and strengthens a global web of connections between curious people—bringing an essential intimacy to the exploration of our universe.

“I choose to contribute both money and time to FFSE because I am convinced it is effective in sharing the wonders of science with the general public, facilitating the inspiration of our future scientific leaders and providing an outlet (or inlet) for the curious. And simply by being curious we begin to fulfill our potential as citizens of both our country and our planet.

“FFSE has made possible many of the cherished friendships and connections that I have made with students, teachers and visitors from around the country. Through these connections, I am often re-inspired by those who see our work and craft with fresh eyes and ears.

“The Open House in particular provides a fantastic mechanism to reach out to enthusiasts and newcomers of all ages. With it, FFSE facilitates the forging of new relationships between scientists and other curious individuals; moreover, it strengthens our community as a whole.”

**Ellen Kohlmeir**, a new member of the Friends board of directors, reflects on the value of FFSE’s science outreach programs:

“Having grown up in DuPage County, I’ve lived my entire life less than 10 miles away from Fermilab. As a child, I knew Fermilab as the place where buffalo roamed the prairie; however as a mother of two young children, it’s come to mean so much more.

“Three years ago, I earned my PhD in Biological Sciences from Northwestern University and while many of my colleagues set off on their scientific careers, I made the choice to focus on my family. It’s a decision that I have never regretted and one that has led me down a path that I never anticipated.

“A little over a year ago, I began seeking a way to get involved with scientific education within my local community. I became familiar with Friends and the programs available at the Lederman Science Center. I signed up to teach a science adventure class for grade school students and was invited to join the governing board for FFSE. I was thrilled at the opportunity to support parents, teachers and young students through the various FFSE programs.

It’s incredibly important that today’s youth have ways to explore, question and appreciate the intricacies of the world around them. The programs that FFSE supports help children experience science in a fun and engaging way. FFSE’s programs take the intimidation factor out of complex scientific concepts and help to instill the all-important scientific curiosity in our future generations of scientists.

This is the reason I donate my time and resources to support the Fermilab Friends for Science Education mission.”

**Peggy Hernandez**, a teacher in School District U-46, described the varied roles of FFSE science programs in her life:

Hired as an elementary teacher, she was asked to teach middle school science due to staff changes at her school. She initially resisted the move. But her colleagues had taken the Particles and Prairies teacher workshop at Fermilab and she attended a prairie field trip with them. She loved it, and so took the training herself the next summer. She followed that with the Beauty and Charm workshop so that she could bring 8th graders to Fermilab for physics field trips.

Over the years as her own children grew, she brought them to Fermilab many times, for Open Houses, then later for the high school STEM career expo. Peggy says that she values Friends not for any one thing, but for the many roles it has played in her life.

## PROGRAMS IN 2013

### FERMILAB FAMILY OPEN HOUSE

The 9th annual Fermilab Family Open House on February 10 drew nearly 2,500 visitors to Fermilab for an afternoon of activities designed to thrill children with science.

Visitors enjoyed old favorites, such as the gravity accelerator, a Newton's cradle, and demos of Bernoulli's principle and Lenz's law. Mr. Freeze (engineer Jerry Zimmerman) performed his rousing cryogenics show three times for delighted crowds; scientists David Schmitz and Michael Cooke presented "FUNdamental Physics;" and throughout the afternoon, staff scientists answered questions at Ask-a-Scientist on the 15th floor.

On-site tours included a visit to the SeaQuest experiment and a trip to view the Muon g-2 magnet ring.

Students from the Illinois Math and Science Academy provided welcome support for the event, and for a third year, other



high schools contributed student-designed activities.

Naperville Central High School's GEMS Club (Girl Engineers, Mathematicians and Scientists) provided an interactive display that allowed visitors to explore the science of color.

Students from the Francis Parker School (Chicago) used marshmallows in bottles to demonstrate the effects of atmospheric pressure.

Five different groups from Carl Sandburg High School (Orland Park) devised activities about topics including conservation of momentum, centripetal acceleration, and the relationship between mass and friction.

Overwhelmingly positive reviews told a story of very impressed adults and happily excited children.

As ever, the Family Open House was free of charge and made possible with the support of FFSE.

### STEM CAREER EXPO

The 2013 STEM Career Expo on April 10 drew 700-800 students and parents from the greater Chicagoland area.

Presenters represented a wide variety of fields and included professionals from local companies and organizations, as well as scientists and engineers from the Fermilab staff.

Five panel discussions enabled students to widen their perspectives on life in the workplace and to compare and contrast many careers.

Information tables located throughout the atrium served as sites of longer, more personal discussions with presenters.

As in past years, reviews were enthusiastic:



"This expo got me a little more interested in engineering—something I never thought I would even consider doing. So thank you!" (student)

"Exceeded our expectations!" (parent)

"Excellent. I loved it. The diversity of our science careers [on the panel] was fascinating. This year seemed very active with engaged students!" (STEM professional)

This annual event is free and open to all high school students. It is sponsored by Fermilab Friends for Science

Education, Batavia High School, Geneva High School, Northern Kane County Region EFE 110, and Valley Education for Employment System (VALEES).

### FAMILY OUTDOOR FAIR

"This is the best day of my life! I'm glad I came!"

That little girl's excitement was not unique at the 2013 Fermilab Family Outdoor Fair. On June 9, a warm and breezy Sunday, nearly 700 visitors turned out to enjoy a wealth of activities in the area outside the Lederman Science Center.

A new exhibit featuring a variety of turtles and information about them drew long lines of excited children.

The new *Run Like a Proton* exhibit on the lawn of the science center stayed busy all afternoon.

A wind energy site staffed by presenters from St.



Scholastica School was another popular innovation.

Visitors indulged their curiosity about everything from raptors (courtesy of the Northern Illinois Raptor Rehab and Education group) to safe solar observation through a telescope (courtesy of the Naperville Astronomy Association).

"Old favorite" activities included sweeping the prairie grass for insects, netting water creatures in the pond, and learning about the American bison at the bison viewing area.

FFSE sponsors this annual free fair to spread the idea that science can be done wherever there is curiosity, and that it is possible and enjoyable to learn about nature without elaborate equipment.

# CONGRATULATIONS TO HONOREES!

## DIRECTOR'S AWARD

We annually honor the more than 200 members of the Fermilab community who contribute their time and talents to Fermilab's education programs.

The Director's Award of \$1,000 is made possible by FFSE through an anonymous donor. It is awarded to one volunteer whose contributions are exceptional, even among the many outstanding volunteer supporters of Fermilab's K-12 education programs.

The 2013 nominees were **Maurice Ball** (AD), **Brendan Casey** (PPD), **Curtis Danner** (PPD), **Roger Dixon** (AD), **Brendan Kiburg** (PPD), **Brian Nord** (FCPA), **Bjoern Penning** (PPD), **Erik Ramberg** (PPD), **Chris Stoughton** (FCPA), and **Jerry Zimmerman** (PPD).

Each nominee received a certificate of appreciation at the Volunteer Reception that was held on October 3.

**Todd Johnson**, an engineer in the Accelerator Division, received the 2013 Director's Award.



*Todd Johnson receives the Director's Award at the Volunteer Reception.*

His citation reads:

"Todd has demonstrated an outstanding ability to connect with students both in person and through exhibits.

"He speaks with hundreds of students and Scouts visiting the Lab every year, and reaches thousands more by designing and building exhibits that are creative, visually engaging, and scientifically rich.

"Todd's dedication to reaching students in a variety of ways enhances the Laboratory's reputation in both education and science research."

One of Todd's lasting contributions to the Lederman Science Center is the laser array for the popular *Take a Cosmic Ray Shower* exhibit. He devised a way to "fold" the laser light so that pulses mimic the angle of incoming cosmic ray particles, yet the lasers don't shine into the eyes of curious visitors.

## PROGRAM SCHOLARSHIPS

**Five teachers** received FFSE-funded scholarships for teacher workshops at Fermilab: **Arieta Bazile**, for the Beauty and Charm Teacher Workshop; **Kathleen Kamphaus** and **Holly Yee**, for the Particles and Prairies Teacher Workshop; **Vanessa McNeff** and **Jean Williams**, for The Prairie - Our

Heartland Teacher Workshop.

**Four teachers** received scholarships for bus transportation to Fermilab field trips.

**Seven families** received scholarships enabling children to attend Science Adventures at Fermilab.

## FERMILAB SCIENCE AWARD FOR HIGH SCHOOL STUDENTS

Every year FFSE underwrites an award program for outstanding science students attending high schools in DuPage and Kane Counties.

Nominated by school faculty, each winner receives a certificate and a book at their school's award ceremony.

This year's winners were:

**Austin J. Szczodrowski**, **Carmen Loi**, Addison Trail High School; **Rachel Rahn**, **Jacob McCarthy**, Aurora Central Catholic High School; **Zach Zakaras**, **Sarah Kaegi**, Aurora Christian School; **Paulina Szakiel**, **Kyle Rakos**, Batavia High School; **Stefan Friesma**, **Preston Hansen**, Burlington Central High School; **Shaista Martin**, **Maryam Naveed**, College Preparatory School of America; **Jack Eichenberger**, **Molly McGhee**, Community High School; **Jagan Jimmy**, **Alvin Wu**, Downers Grove South High School; **Gloria Wang**, **Trevor Vogler**, Dundee-Crown High School; **Alexis Zamora**, **Erick Tepox**, East Aurora High School; **Vito Maglio**, **Brigitte Keslinke**, Elgin Academy; **Maria Arianas**, **Kaine Stewart**, Fenton High School; **Michelle Volk**, **Andrew Bean**, Glenbard South High School; **Jenny**

**Lohmeier**, **Luke Schranz**, Hinsdale Central High School; **Greg Danielson**, **Erin Navins**, Hinsdale South High School; **Kelsey Packer**, **Thomas Guinan**, IC Catholic Prep; **Clare Leahy**, **Ethan Gordon**, Illinois Mathematics and Science Academy; **Jessica Thompson**, **Andrea Wojciechowski**, Lake Park High School (East Campus); **Aine Naughton**, **Aaron Rhodes**, Larkin High School; **Danielle Primm**, **Brandon Nsiah-Ababio**, Marquette Manor Baptist Academy; **Gabe Lynch**, **Jack Brady**, Montini Catholic High School; **Lucia Korpas**, **Kirthi Bellamkonda**, Naperville Central High School; **Jesika Barmanbek**, **Aimee Arvayo**, Rosary High School; **Agne Stoskute**, **Joseph Corvino**, St. Charles East High School; **Alek Druck**, **Hannah Horsfall**, St. Charles North High School; **Peter Quirk**, **Cody Jensen**, St. Francis High School; **Nathan Knaut**, **Emily Mehlbrech**, West Aurora High School; **Lydia Hekman**, Westminster Christian High School; **Kyle Tegtmeyer**, **Kayla Leonard**, Wheaton North High School; **Anand Poozhikunnel**, **Ryan LaFleur**, Wheaton Warrenville South High School; **Evan Fabry**, **Alexandra Julian**, York Community High School.

# PROGRAM HIGHLIGHTS

## January

More than 25,000 students in the greater Chicago area enjoyed science demonstrations at their schools during 2013 when Fermilab scientists visited 153 classrooms through the **Classroom Presentation** program.

## February

The ninth annual **Fermilab Family Open House** on February 10 drew an estimated 2,700 people. The third "Physics Carnival" included 18 physics students from four high schools who designed hands-on activities and shared them with children. **Ask-a-Scientist**, make-and-take, FUNdamental Physics, tours of the linear accelerator and the Remote Operations Center, and visits to the SeaQuest experimental area were all popular attractions. Education Office staff once again profited from the assistance of students from the Illinois Math and Science Academy.

## March

About 1,180 **scouts** from 74 troops earned patches and badges at the Lederman Science Center this year. Titles include: Science Sleuth, Exploring Science, Explore Engineering, and Sky Search (Girl Scouts); Scientist, Engineer (Webelo); and the Nuclear Science badge (Boy Scouts).

## April

On April 10 the Education Office hosted the annual **STEM Career Expo** for high school students in nearby counties. About 700-800 students and parents attended and enjoyed panel discussions and one-on-one chats about careers in science.

*Weird Science* wowed the crowds for another year at the 26th annual **Wonders of Science** show on April 14. Ramsey Auditorium was sold out for the event. This year's presenters were Karl Craddock (Fremd H.S.), Bill Grosser (Oak Park and River Forest H.S.) and Lee Marek (U. Illinois at Chicago).

## May

The Lederman Science Center's **Run Like a Proton** outdoor exhibit made its debut on May 21 with two events: a small celebration in the afternoon for those who helped develop the exhibit, then the FFSE annual meeting in the evening.

Another exhibit outside the LSC, a solar array, surged to life, tracking the sun and collecting energy.

## June

The June 9 **Fermilab Family Outdoor Fair** drew nearly 700 visitors seeking to enjoy hands-on science on the lawn of the Lederman Science Center. The Northern Illinois Raptor Rehab and Education group and the Naperville Astronomical Society reprised their popular displays. First time participants Richard and Kathy Whitman brought turtles, much to the crowd's delight, and Alex Kirch and Anthony Carcerano of St. Scholastica School brought equipment to demonstrate wind energy.

## July

**Summer teacher programs** were popular again this year:

- The *Summer Secondary Biology Institute*, the *Summer Secondary Physics/Mechanics Institute*, the *Summer Secondary Physics/Waves, Sound and Optics Institute* drew 26 educators.
- The *Beauty and Charm* workshop drew 8 teachers.
- The *Phriendly Physics* workshop drew 8 teachers.
- The *Particles and Prairies* workshop drew 5 teachers.
- *The Prairie - Our Heartland* workshop drew 8 teachers.

## August

**Science Adventures**, short, informal classes, served 570 children in 48 sessions during spring, summer and fall sessions. This year's offerings included *CSI: Careful Scientific Investigation*, *Earth Engineers*, *Art Mysteries: Science Solutions*, *Flight and Fashion*, *Soil Sleuthing*, *Unlocking Science and Math Problems*, *Making Waves with Medical Imaging*, *Wild and Wonderful Weather*, and another *Girls Scientific Salon*.

## September

Middle school **physics field trips** offered through the Lederman Science Center brought thousands of students to the lab:

*Beauty and Charm* and *Phriendly Physics* field trips drew 2,040 students from 36 schools.

## October

On October 3, Fermilab honored more than 200 employees who contributed to Education Office programs in 2013. The annual **Volunteer Reception** was sponsored by FFSE and the Education Office. Todd Johnson of the Accelerator Division received the 2013 **Director's Award**.

## November

Middle school **prairie field trips** offered through the Lederman Science Center brought thousands of students to the lab:

*Particles and Prairies* and *The Prairie - Our Heartland* field trips drew 2,526 students from 36 schools in 2013. *Insects at Work in Our World* drew 154 students from three schools.

## December

Outreach programs continue to reach large audiences of all ages:

The Sunday **Ask-a-Scientist** program brought over 1,000 visitors to the lab for talks and tours.

Wednesday **Get to Know Fermilab** tours drew an additional 1,100 visitors.

Saturday **Get to Know the Lederman Science Center** tours attracted more than 121 participants.

## PERSONNEL

### *The success of the 2013 FFSE education programs rests with these outstanding program leaders.*

**Kristin Appiah-Word**, Lawndale Academy, Chicago • **Michael Bachrodt**, Fremd High School, Palatine  
**Elizabeth Benatti**, teacher, retired • **Lauren Birth**, St. Peter Catholic School, Aurora • **James Browne**, Amboy High School • **SueZ Bruno**, Gates Elementary School, Aurora • **Jill Burke**, Franklin Park School District 84  
**Trudi Coutts**, Naperville Community Unit School District 203 • **James D. Cox**, teacher, retired • **Karl Craddock**, Fremd High School, Palatine • **Larry Cwik**, Seton Academy, South Holland • **Jason English**, Fremd High School, Palatine • **Todd Ernst**, Valley View School District 365U • **Michelle Fabian**, Batavia High School  
**Amy Fehrman**, Johnson Elementary School, Warrenville • **Patricia M. Franzen**, Wild Enterprises, Metamora  
**Barbara Greenberg**, teacher, retired • **Bill Grosser**, Oak Park and River Forest High School • **Marc Hans**, School District U-46 • **Michael Heinz**, Niles West High School • **Mary Ann Janiak**, teacher, retired • **Randy Jones**, Glen Ellyn School District 41 • **Elizabeth Karnik**, Western Springs School District 101 • **Steve Keefe**, teacher, retired • **Nikki Kitzmiller**, Rotolo Middle School, Batavia • **Tom Knutson**, teacher, retired • **Ellen Kohlmeir**, Biomedical Scientist • **Robert Lewis**, Downers Grove North High School • **Paul Madsen**, Rosary High School, Aurora • **Lee R. Marek**, University of Illinois, Chicago • **Stefany Montgomery**, Geneva High School • **Jill Mueller**, West Chicago Middle School • **Radomir Niewrzol**, Glenbard North High School, Carol Stream • **Mary Sue Offut**, SciTech and Field Museum volunteer • **Glenda Peck**, Alice Gustafson Elementary School, Batavia • **Pat Pentek**, West Chicago Middle School • **Tom Redig**, Downers Grove North High School  
**Barbara A. Romack**, teacher, retired • **Chris Ruffolo**, Neuqua Valley High School • **Susan Sanders**, Glenbard School District 87, Glen Ellyn • **Katherine Seguino**, Naperville Central High School • **Marsha Stierwalt**, Alice Gustafson Elementary School, Batavia • **Patrick Swanson**, Hoffman Estates High School • **Michael Wegrzyn**, Metea Valley High School, Aurora • **Karen Weigt**, Kaneland John Stewart Elementary School, Elburn • **Wayne R. Wittenberg**, Benjamin Franklin School, Glen Ellyn

### *Many Fermilab scientists give their time generously to education programs throughout the year.*

Corey Adams • Mark Adams • Michael Albrow • Wayne Baisley • Maurice Ball • Leo Bellantoni • Jamie Blowers  
Mark Bollinger • Chuck Brown • Ryan Campbell • Kermit Carlson • Tom Carter • Alex Chen • Dave Christian  
Penelope Constanta • Michael Cooke • Andrew Dalesandro • Fritz DeJongh • Roger Dixon • Brian Drendel  
Martin Frank • Lynn Garren • Sandra Geib-Ingram • Doug Glenzinski • Stefan Gruenendahl • Sten Hansen  
David Harding • Elvin Harms • Anne Heavey • Michael Herr • Samantha Kaushalya Hewamanage • Sergo  
Jindariani • Cindy Joe • Amber Johnson • David Johnson • Todd Johnson • Jim Kalina • Young-Kee Kim • Terry  
Kiper • Donna Kubik • Jerry Liebfritz • Don Lincoln • Sarah Lockwitz • Margaret Marks • Carrie McGivern  
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### *Education Office staff administers and supports Fermilab programs.*

**Marjorie G. Bardeen**, Manager • **Ketevan Akhobadze**, Educational Facilities Coordinator • **Carol Angarola**, Program Administrator • **Andrea Cox**, Administrative Support Assistant • **Susan M. Dahl**, Education Specialist • **LaMargo A. Gill**, Editor • **David Hoppert**, Laboratory Technician • **Maureen Hix**, Administrative Support Assistant • **Gayle Millman**, Administrative Support Assistant • **Spencer L. Pasero**, Education Program Leader • **Robert Peterson**, Education Specialist • **Elizabeth K. Quigg**, Computer Specialist  
**Sue Sheehan**, Education Program Leader

### *Docents facilitate student field trips and other Education Office activities and supervise the Lederman Science Center.*

Lynda A. Ballingall • Donna Blankenship • Maureen Boyer • Mary Campbell • Muriel Cease • Nanette Doubler  
Susan Dumford • Vida Goldstein • Jane Gravelle • Lori Haseltine • H. Ted Hoesel • Helen D. Huie • Jacqueline  
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Mark Pennington • Gail Poisson • Bob Shaw • Felicia Svoboda • Anne Mary Teichert • Yvonne Twomey • Bill  
Welch • Dorothy Yurs



## REVENUES AND EXPENSES

	2013 (audited)	2012 (audited)
<b>Revenue/Contributions (\$000)</b>		
Contributions/Foundations	\$ 25.2	\$ 37.8
Membership	20.3	17.2
Other	8.3	7.5
<b>Total Revenue/Contributions</b>	<b>\$ 53.8</b>	<b>\$ 62.5</b>
<b>Expenses</b>		
Program Services	\$ 39.8	\$ 44.3
Administrative Overhead	12.4	12.7
<b>Total Expenses</b>	<b>\$ 52.2</b>	<b>\$ 57.0</b>
<b>Change in Net Assets</b>	<b>\$ 1.6</b>	<b>\$ 5.5</b>
<b>End of Year</b>	<b>\$ 143.9</b>	<b>\$ 142.3</b>

## ACKNOWLEDGEMENTS

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NetSpec, Inc.  
Northern Kane County Region EFE 110  
St. Charles East High School  
School District U-46  
Valley Education for Employment System



# Celebrating 30 Years of Friends



Counterclockwise from left:  
**1983** Friends founders Stanka Jovanovic, Leon Lederman and Marge Bardeen

**1988** First board of directors  
**1992** Ribbon cutting for the Lederman Science Center: Fermilab Director John Peoples, Stanka Jovanovic, Leon Lederman, Marge Bardeen, Fermilab founder Robert Wilson  
**1993** Fermilab Education Program review  
**2002** Ten year anniversary of the LSC: Fermilab Director Mike Witherell, Leon Lederman, Marge Bardeen



**1992** Mac Douglas, Gene Fisk and Drasko Jovanovic at the LSC



Board members Roger Dixon and Cynthia Marler



Board member Pat Franzen and the Education Office's Liz Quigg



Board members Bob Fieseler and Selitha Raja



Board member and Weird Science performer Lee Marek at Wonders of Science



**2011** Fermilab Director Pier Oddone inaugurates the Take a Cosmic Ray Shower exhibit at the LSC.



Counterclockwise from left:  
**2008** The FFSE van: Education Office's Sue Sheehan, scientist David Schmidt, docent Dee Huie, scientists Michael Cooke and David Harding, docent Mary Jo Murphy, engineer Jerry Zimmerman

**2011** Scientist Mike Tartaglia gives a tour of the Industrial Area at the first "Members Only" outing.

**2013** Marge Bardeen, Directors Mike Knapp and Gary Johnson, and docent Lynda Ballingall

