Dear Friends,

At the Adler, we love neighborhoods: our neighborhood, your neighborhood, the cosmic neighborhood. The museum resides in Chicago’s South Loop, but our full address highlights our vast reach and connections: 1300 S. Lake Shore Drive, Chicago, IL, USA, Earth, Solar System, Orion Spiral Arm, Milky Way Galaxy, Local Group, Virgo Supercluster, Universe. Whether close to home or far, far away, 2016 has been a year of neighborhood engagement and exploration for the Adler.

This year, we introduced a new exhibition and a sky show that explore our nearest cosmic neighborhood, the Solar System. The exhibition, *What is a Planet?*, uses the saga of Pluto to help visitors experience how scientific understanding evolves over time as new discoveries inform our thinking. Our sky show, *Planet Nine*, showcases the dramatic evolution of the outer Solar System and joins a team of scientists on the hunt for an elusive new neighbor we can’t wait to meet—a true ninth planet at the edges of our block.

Closer to home, our terrestrial neighborhood is growing, too! This year, several Adler programs expanded to include new age groups. Families and teens attended *Adler After Dark: Family Edition* together, adults ages 21+ experienced the thrill of launching experiments into space with *Far Horizons*, and high school students enjoyed a special edition of *Mission Near-Space* camp designed just for them. We also launched two new programs—*Community Telescope Ambassadors* and *Citizen Science Ambassadors*—that empower participants to take what they learn at the museum back into their Chicago neighborhoods.

Our focus on building and exploring neighborhoods together is working; we are on track to surpass the record-breaking attendance number we achieved in 2015!

Your friendship and support make our community stronger every year. We are delighted to share these stories with you and thank you for your continued commitment to the Adler Planetarium in 2016 and beyond.

—MICHELLE B. LARSON, PHD

MICHELLE B. LARSON, PHD
President and CEO

SCOTT C. SWANSON
Chair, Board of Trustees
IN 2016, THE ADLER RECEIVED MANY TRANSFORMATIVE GIFTS.
A generous gift from The Grainger Foundation will build on their continued investment in the museum’s theater experience. Their contribution will fund infrastructure upgrades to the Grainger Sky Theater and the Definiti Space Theater including new projectors, new seats, new screens, and other improvements all in service of a spectacular guest experience—while keeping both theaters at the very top of their class.

Zooniverse, the citizen science initiative led by the Adler Planetarium and Oxford University, was awarded a three-year, $1.7-million grant from The Leona M. and Harry B. Helmsley Charitable Trust. The grant will support the expansion of the Zooniverse platform to include new features designed around the needs of preclinical researchers. It will also support Zooniverse projects including a partnership with Northwestern University’s Oncofertility Lab.

The Adler is grateful to the Pritzker Foundation and the S&C Foundation for their generous support of Adler Teen Leaders Advancing STEM (ATLAS), a museum-wide initiative to provide technical and professional skills, mentorship, and a welcoming learning environment for teens with diverse backgrounds, interests, and abilities. This support allows the museum to provide one-of-a-kind educational programming that empowers young people to make STEM a part of their future.
We had another record year as the museum welcomed 568,814 guests in 2016—another 5% increase from 2015.

Both Adler After Dark and Sun Salutations Yoga sold out every event in 2016.
The Adler’s newest sky show premiered in May to rave reviews. In *Planet Nine*, viewers join 2012 Kavli Prize Laureate in Astrophysics and renowned “Pluto Killer” Mike Brown and his team of Caltech astronomers on the hunt for an undiscovered planet in our outer Solar System.

What may be most impressive about this show, developed by the planetarium’s in-house space visualization team, is that it brings viewers tomorrow’s science today. “I’m kind of in awe,” the California Institute of Technology astronomer Michael Brown, famous as the man who demoted Pluto, said after a recent preview of the show. “That’s a very beautiful computer simulation of the effects of Planet Nine.”

—STEVE JOHNSON

‘Planet Nine,’ Adler’s best sky show yet, chronicles quest for a Pluto replacement

Chicago Tribune, May 25, 2016

The Adler members were invited to a special sneak preview of the show during the museum’s Members’ Night: Planet Party. In addition to a first look at the show, members enjoyed a boisterous Astronomy Slam in which Adler astronomers debated Pluto’s planetary status, planet observing in the Doane Observatory, and a visit from retired astronaut Tom Jones.

Planet Nine’s opening weekend saw the Grainger Sky Theater sold out (or very nearly sold out) for every screening of the show.

The Adler Planetarium gratefully acknowledges The Kavli Foundation—which is dedicated to the goals of advancing science for the benefit of humanity and promoting increased public understanding and support for scientists and their work—for its generous support of Planet Nine.
Visitors build a vehicle out of LEGO® pieces that can move supplies from a rocket to a science lab using a zipline and gravity. There is no single “right way” to accomplish this task—it’s all about building, testing, and improving!

Visitors construct a parachute and payload out of craft materials like paper cups, string, and coffee filters, then test it in our seven-foot-tall wind tunnel. Some variations of the challenge ask visitors to design a high-flying payload or a payload that will float in the wind tunnel!

The Community Design Lab (CDL) has been one of the Adler’s most popular experiences since it opened in 2015. During its first year, the CDL invited visitors to build telescope mounts for their smartphones and explore what happens to everyday objects in the harsh environment of space. In 2016, the CDL introduced two new challenges to encourage creativity and critical thinking at the museum.
The Adler’s Doane Observatory gives visitors a unique opportunity to see a variety of celestial objects through a research-quality telescope. The Adler is currently fundraising for the second phase of a multi-million dollar renovation—the first since the observatory was built in 1977—under the leadership of Adler Trustees Dushan Petrovich and Jeff Rothstein.
One hundred years after Albert Einstein predicted the existence of gravitational waves—ripples in the fabric of spacetime—astronomers at the Laser Interferometer Gravitational-Wave Observatory (LIGO) detected one for the first time in September 2015. The LIGO team, which includes Adler astronomer Dr. Shane Larson, announced their historic discovery in February 2016.

The Adler was ready. Within moments of the announcement, the museum invited visitors to celebrate (and brush up on their knowledge of Einstein's theory of general relativity) with us in LIGO Discovers Gravitational Waves, a temporary exhibition in the Clark Family Welcome Gallery.

Have you ever wondered what warp drive might be like? Or why spacecraft in movies are always right side up? Since its debut in January 2016, the Adler’s sci-fi film screening series, REEL Science, has helped movie-lovers separate the science from the fiction in their favorite flicks.

Every ticket to a REEL Science event includes after-hours museum access, pre-show trivia, a post-show discussion and Q&A with a panel of Adler astronomers. In 2016, our scientists delved into topics like warp drive after Star Trek II: The Wrath of Khan, future tech and interstellar wars after Galaxy Quest, time travel after Back to the Future, and a whole lot more.

REEL Science is presented by Revolution Brewing and supported by Wells Street Popcorn.

GRAVITATIONAL WAVES: A NEW WAY TO LEARN ABOUT THE UNIVERSE

The LIGO sites are gigantic L-shaped facilities, 4 kilometers (2.5 miles) to a side. A laser and the detection system are housed in the corner building of the facility, and large mirrors are suspended at the ends of the arms. There are two detectors located in Livingston, Louisiana and Hanford, Washington.
February’s Roderick S. Webster Memorial Lecture—the 17th since the lecture series began in 1998—featured Cornell University Associate Professor Barry Perlus. Perlus, who is also an Associate Dean of Cornell’s College of Architecture, Art, and Planning, explored the relationships between astronomy, astrology, mathematics, architecture, design, politics, religion, and art in his lecture, “Jantar Mantar—The Astronomical Observatories of Jai Singh.”

Created in 1998, the Roderick S. Webster Memorial Lecture is hosted each year in memory of Roderick Webster, former Adler Curator and Chairman of the Board. The Adler is grateful to the Archaeological Institute of America for their partnership in presenting the Webster Memorial Lecture.

LESSONS ON SCIENCE AND SOCIETY FROM 18TH-CENTURY INDIA

While Mardi Gras brought street festivals, masquerades, merriment, and lots of colorful beads to cities around the world, the Adler took the party to space.

On February 6, the museum hosted its first Mars-di Gras, a seasonal celebration of Mars. Visitors were transported to the Red Planet, where they found out first-hand what it would be like to live, work, and play on the fourth rock from the Sun.

Backed by the jazz stylings of Chicago’s own Lowdown Brass Band, visitors enjoyed a Martian masquerade, played “Mars or Earth” with Adler astronomers, designed and launched gliders from high-altitude balloons, explored breathtaking images of Mars with the Planetary Society’s Emily Lakdawalla, and so much more.
On February 20, 2016, teams of 6th–8th graders joined forces with charities and web developers at the Adler to design prototype solutions for nonprofit organizations.

Students worked in teams with STEM mentors, mentors from CoderDojoChi, and representatives from eight nonprofit organizations including the Chicago Park District, Anti-Cruelty Society, and Bit Bash.

Projects included designing a prototype app to connect students with service learning opportunities and creating an outreach and marketing campaign to promote an alternative games festival with youth.

The Adler’s “hack days” encourage participants to “hack” their environment by using common technologies in creative ways. Random Hacks of Kindness Jr. helps middle school students understand and design solutions to problems in their communities.

Although technology plays a central role in Random Hacks of Kindness Jr., students with different interests and skill levels are encouraged to participate and work together. When we asked this year’s students to tell us their favorite part of the day, we got a wonderfully diverse array of answers. Here’s a small sampling:

- My favorite activity was coding the app.
- Looking at the exhibits.
- Making the website.
- I enjoyed researching about art museum humidifiers.
- Everything was my favorite.
- Just working on the problem and talking with everyone.
- Teaching the adults something new.
- I liked filming the footage the most.
- Storyboarding the video and choosing animation styles.
- Using social media platforms to advertise.
What is a PLANET?

Ten years after its reclassification, Pluto is still dogged by its demotion to dwarf planet. If Pluto isn’t a planet, then what is? The answer is more complicated than you think. From March 2016 to January 2017, the Adler introduced a new temporary exhibition, What is a Planet?, to help visitors find out.

Reclassifying Pluto to dwarf planet status may have seemed drastic at the time, but it wasn’t the first time astronomers’ understanding of what makes a planet had shifted. The accepted definition of a planet has changed a lot in the past 500 years.

At various moments the term has been used to describe the Sun, the Moon, and asteroids. And Earth—the most familiar planet of all—hasn’t always been considered a planet!

In November, the exhibition won first prize in British Society for the History of Science Great Exhibitions competition.
Throughout the weekend, visitors discovered the effects of light pollution, explored the Earth from the stratosphere via a high-altitude balloon, solved engineering problems with reusable materials, saw Adler astronomers throw down their most mind-blowing Earth facts at our scientist-studded astronomy slam, and had their senses dazzled at our sensory station.

Special guests included world-renowned climate scientist Gavin Schmidt, who helped us think about climate change and its effects on our planet. WBEZ Chicago on-air personality Tricia Bobeda from the popular Nerdette podcast talked about real world science in fictional sci-fi worlds, and Jerome McDonnell from the radio program Worldview gave everyone a new perspective on our home planet.

Our Favorite Planet

Nearly 4,600 visitors joined the Adler and WBEZ Chicago for Earthfest, a three-day celebration of our little blue corner of the Universe, from April 22 through April 24, 2016.

STEM for the Holidays

To cap off another incredible year at the Adler, in partnership with organizations from around Chicago, the museum hosted a series of programs to get visitors thinking, building, testing, and exploring.

In the final week of December 2016, these free (with paid admission) pop-up programs encouraged people of all ages to spend their winter break learning together in an Adler’s Curiosity Classroom.

Participants experimented with lift, thrust, gravity, and drag by constructing their own paper airplanes; created 3D space scenes in honor of Dr. Patricia Cowings, the first African American woman scientist to be trained as a NASA astronaut; built a shock-absorbing system to land a pair of marshmallow astronauts safely on the Moon; and many more activities.

The Adler Planetarium gratefully acknowledges Engineering for Kids, Bronzeville Children’s Museum, Yellow Canoe at Wizcraft Workshop, Project SYNCERE, Girls 4 Science, and Play-Well TEKnologies for their partnership during this week of special programming.

Special thanks to our event partners: WBEZ Chicago, One Earth Film Festival, NU Solar, Illinois Solar Energy Association, the Morton Arboretum, the City of Chicago, and the Chicago Park District.
Since Adler astronomers Dr. Geza Gyuk and Dr. Mark Hammegren launched the very first Far Horizons mission in 2006, the museum’s high-altitude ballooning program has really taken off (pun definitely intended). Far Horizons now hosts summer camps for young people, an annual engineering contest for local high school students, and a fleet of dedicated volunteers.

10 YEARS, 100 LAUNCHES: FAR HORIZONS CONTINUES TO SOAR

In October, Far Horizons celebrated its 100th mission, which featured student-designed experiments and training opportunities for teachers and faculty from science, technology, engineering, and math (STEM) enrichment programs. On the launch, the team tested a live video-streaming system for the Far Horizons’ 2017 eclipse mission, which will document August’s total solar eclipse from the stratosphere.

NEAR-SPACE CAMP FOR ADULTS

Until 2016, most of the people who explored space with Far Horizons were students. And everyone who enrolls in Mission Near-Space camp was under the age of 17. But after years of longing glances from adults around the museum and Chicagoland, in May, the Far Horizons team introduced a new ballooning experience for adults!

Mission Near-Space: 21+ Edition takes all the best elements of Mission Near-Space camp—a balloon launch! a thrilling chase! a crash course in the physics of falling!—and adds grown-up perks like after-launch cocktails and a chance to mingle with scientists back at the museum. The sold-out program gave 15 grown-up space enthusiasts the chance of a lifetime.

The Adler Planetarium is grateful to the Peggy and Steve Fossett Foundation for their support of Far Horizons: A Tribute to Steve Fossett.

DR. GEZA GYUK
Adler astronomer and Far Horizons co-founder

The Far Horizons program provides such a unique opportunity. Above all, it demonstrates to students and teachers that you don’t have to be a rocket scientist to explore space.
Young space and technology enthusiasts ages 3 through 16 flock to the museum every summer to explore space, use telescopes, build rockets, immerse themselves in award-winning sky shows, program robots, explore exhibits, launch high-altitude balloons, and much, much more.

The Adler is grateful to the Motorola Solutions Foundation and Baxter International, Inc. for their generous support of the museum’s summer camps.

This year, the summer camps team introduced Mission Near-Space 2, which guides students as they design their own experiments and launch them to the edge of space aboard high-altitude balloons. This advanced version of the original Mission Near-Space camp serves teens in grades 8–12.

The Adler’s summer camps introduce kids, teens, and tweens to science and technology and challenge them to think creatively about the world around them.

When school’s out, science is in

The Adler’s Clark Family Welcome Gallery turned into a little slice of ancient Egypt on May 25, as members of the Friends of the Webster Institute and the James Henry Breasted Society (a special membership group of the Oriental Institute of the University of Chicago) co-hosted the lecture, “The Unwearying & Impershible Stars: The Night Sky of Ancient Egypt” by McMaster University Professor Sarah Symons.

Before the lecture, the Webster Institute staff introduced guests to treasures from the Adler’s collection, including a hand-colored copy of Bayer’s “Uranometria,” an exquisite 16th-century astronomical compendium, and the oldest object in the collection—a 12th-century Persian astrolabe.

This event was open exclusively to members of the Friends of the Webster Institute and The Alan B. Shepard Society; Mars-level Adler members; and members of the Oriental Institute of the University of Chicago.

The Adler is grateful to the James Henry Breasted Society of the Oriental Institute at the University of Chicago for co-hosting this special event.
Every summer, the Adler welcomes a group of high school interns from across Chicagoland to work all around the museum. Teens are placed in professional roles that range from facilitating engineering challenges with visitors, taking part in high-altitude balloon launches, or working with teen educators to develop a video game-making workshop for their peers.

This summer’s teen interns worked at the Adler for eight weeks in roles like Telescope Facilitator and Summer Camp Assistant. They also honed college and career skills, led telescope viewing with Adler guests, and assisted the Webster Institute with its efforts to digitize the Adler’s world-renowned collection.

Interns also attended Career X-Ploration—a one-day networking event with STEM professionals and other youth from around the city. Career X-Ploration features a morning panel discussion and an afternoon meet-and-greet with STEM professionals who are stationed around the museum to explain and answer questions about their chosen careers. This year’s STEM professionals came from a wide range of careers including graphic design, web development, chemical engineering, and medical research.

The Adler Planetarium is grateful to Bank of America and the Leo S. Guthman Fund for their generous support of the Teen Summer Internship Program.
On Saturday, September 10, 2016, the Women’s Board of the Adler Planetarium hosted the Adler’s biggest fundraising event of the year: 2016 Celestial Ball: Across the Universe. The annual black-tie gala raised more than $1.6 million for programs that engage the community and inspire young people to pursue careers in science, technology, engineering, and math (STEM).

The 2016 Adler Planetarium Corporate Partner award was presented to S&C Electric Company, represented by President and CEO Kyle Seymour and Chairman John Estey. The Adler is grateful for S&C Electric Company’s generous support of ATLAS (Adler Teen Leaders Advancing STEM), and to Estey for his continued leadership and service as a member and former Chair of the Adler’s Board of Trustees.

Women’s Board President, Linda Gerstman and 2016 Celestial Ball Chair, Jacqueline Hawwa welcomed more than 600 guests who enjoyed a cocktail reception and silent auction featuring once-in-a-lifetime opportunities like a dinner with American hero and space pioneer Captain James A. Lovell, Jr., a private tour of SpaceX, and behind-the-scenes access during New York Fashion Week. During dinner, guests were treated to a selection of table-side science demonstrations provided by the Adler’s teen “Science Sommeliers” and volunteers.

Thank you to the Women’s Board, the Board of Trustees, our generous sponsors and guests for making the 2016 Celestial Ball the most successful fundraiser in Adler history. A special thanks to our Galaxy sponsors: Boeing, ITW, Magellan, PNC, and S&C Electric Company. And our media sponsor Michigan Avenue magazine. And to United Airlines—the official and exclusive airline of the Adler Planetarium.

Following a successful pilot in 2015, the Far Horizons Teacher Experience welcomed twice as many teachers to the museum in 2016. The unique professional development program helps teachers bring high-altitude ballooning to their students. In July 2016, 16 teachers (9 of whom teach in Chicago Public Schools) attended a week-long high-altitude ballooning course, developed their own experiments, and launched them into near-space! At the end of the course, the teachers were eager to bring the program to their schools.

The Adler Planetarium is grateful to State Farm and the Polk Bros. Foundation for supporting the Far Horizons Teacher Experience.
The Chicago Reader’s favorite after-hours museum event, usually open only to adults ages 21 and over, embraced its inner child on August 5, 2016, with the first Adler After Dark: Family Edition.

Perfect for parents who love science and cocktails but couldn’t find a sitter and 19-year-olds who couldn’t bear another month of watching their slightly older friends have all the fun, the family edition of Adler After Dark included everything our 21-and-older visitors enjoy: full access to all museum exhibits, unlimited sky shows, telescope viewing, and live entertainment. It also treated younger visitors to a kiddie-cocktail bar, interactive experiments suitable for all ages, and a special character visitor. The event sold out and will be offered again in 2017.
All year long, Adler astronomers and educators are bringing the museum—and the Universe—a little closer to Chicago! With 'Scopes in the City, Adler team members lead free sky-observing events in Chicagoland neighborhoods. Depending on the date, time, and location of each event, attendees may be able to observe the Sun, Moon, Jupiter, Saturn, and other freaking awesome celestial sites!

In 2016, program leaders and volunteers hosted events all over the city and suburbs in neighborhoods including West Englewood, Chinatown, and Humboldt Park. More than two thousand people came out to #LookUp with us.

WHERE WILL ‘SCOPES POP UP NEXT?

Check out adlerplanetarium.org/education/scopes-in-the-city to find out!
Galaxy Ride

In October 2016, Adler staff members Michelle Nichols, Dr. Lucianne Walkowicz, and Sarah Smail hit the road for the Adler’s second annual *Galaxy Ride*—a science roadshow that brings fun space activities to communities across the Midwest. The Galaxy Riders headed northwest in a circle that took them from Chicago through Wisconsin; to Minneapolis, Minnesota; Walcott and Davenport, Iowa; Lincoln and Normal, Illinois; and back. Here’s a look at excerpts from their journey.

**OCTOBER 10**

Madison, WI

After a 2.5 hour drive, we pulled up to the University of Wisconsin Space Place, the outreach organization of UW’s Astronomy Department, where 150 people came in to have fun with us! We kept everyone busy for two full hours with astronomy activities about light, color, size and scale.

**OCTOBER 11**

Trempealeau & La Crosse, WI

After encountering a big pink elephant at an expressway gas station, we arrived in Trempealeau, where we did science with students from the local elementary school at the Shirley M. Wright Memorial Library. Later, in La Crosse, many families ooh-ed and ahh-ed over telescope views of the Moon and Saturn.

**OCTOBER 12**

Minneapolis, MN

Activities were a hit with eighth graders from Bloomington, Minnesota, who met us at the Bell Museum of Natural History. They learned about the scale of the Earth-Moon system, saw a special demonstration about the nature of gravity and black holes, and asked some very insightful questions!

**OCTOBER 13**

Walcott & Davenport, IA

Walcott Intermediate School: 19 classrooms taught, 400 students served, and several thousand ultraviolet light-sensitive beads distributed to enthusiastic students. Later that night, in front of the Figge Art Museum, guests to our telescope saw the Moon, Saturn, Mars, Alberio, and Arcturus. One lucky person also spotted the Ring Nebula!

**OCTOBER 14**

Lincoln & Normal, IL

Students from local elementary schools joined us for outdoor activities at the Lincoln Public Library. The Sun looked impressive through our telescope. At our final stop, guests marveled at the Sun and the Moon, held real meteorites, and danced inside our Hoberman Sphere to represent the interior workings of a star.

**OCTOBER 15**

Home, Sweet Home Chicago

The Galaxy Riders returned to Chicago after eight stops in eight cities in four Midwestern states. We visited four public libraries and two museums, crossed the Mississippi River four times, and gave 1,300 Midwesterners a new appreciation of how freaking awesome space is. It was an incredibly busy—and incredibly rewarding—week!

Space is freaking awesome??? You guys are freaking awesome!! South Madison has for many years been known as a challenging neighborhood, so to see the happy and excited faces was so inspiring. [You] guys had them totally engaged and amazed at seeing things in a new “light.” Kudos!

—UW SPACE PLACE STAFF

Galaxy Ride 2017 will hit the road ahead of the solar eclipse in August and travel to communities south of Chicago on a path to Carbondale, Illinois. If you are in central or southern Illinois, look for the Galaxy Riders in a town near you!
Participants explored a variety of citizen science projects through Zooniverse, learned the basics of computer programming language Python, and applied their new skills to analyze a Zooniverse project of their choice. Students investigated how disappearing species affected ecosystems in the Serengeti with data from Snapshot Serengeti, the relationship between the magnitude of a stellar bubble and its distance from the center of the galaxy with data from The Milky Way Project, and other research questions of their own devising. As the projects progressed, students shared their discoveries on social media.

The Adler loves to remind young people that science is not what we know—it’s how we discover what we know. In July and August 2016, 16 local teens set out to make their own discoveries with Citizen Science Ambassadors, an initiative funded by After School Matters.

COMMUNITY TELESCOPE AMBASSADORS

A partnership between the Chicago Public Library (CPL) and the Adler brought telescopes and teen astronomy programming to five CPL branches: West Englewood, Humboldt Park, Richard M. Daley, Chinatown, and Wrightwood-Ashburn.

Museum program staff worked with youth librarians at each branch to identify and train cohorts of teens in STEM topics such as light, color, optics, and the Moon. Teens also learned how to operate telescopes and lead public observing events. Throughout the summer and fall, each participating CPL branch hosted an observing event with the Community Telescope Ambassadors at the helm.

The Adler Planetarium is grateful to the Hive Chicago Fund for Connected Learning for its support of Community Telescope Ambassadors.

CITIZEN SCIENCE HITS THE STREETS

The Adler loves to remind young people that science is not what we know—it’s how we discover what we know. In July and August 2016, 16 local teens set out to make their own discoveries with Citizen Science Ambassadors, an initiative funded by After School Matters.
What made you decide to get involved at the Adler?

It started out with me looking for something to do, when I saw that there was a volunteer fair for a planetarium in Chicago! Once I started volunteering, I was approached to join the Adler’s Youth Leadership Council, which lead me more into the teen programs.

What’s your favorite mind-blowing fact about the Universe?

My favorite fact is that the Universe is always getting bigger. It’s hard to believe that something we don’t even have a complete grasp of yet is still getting bigger and faster over time.

ADLER TEEN HONORED WITH LEADERSHIP AWARD

During the Women in Space Science Award ceremony, Neuqua Valley High School senior Karisa Zdanky received the Paul H. Knappenberger, Jr. STEM Leadership Award for her years of volunteering and youth leadership at the Adler. Before she headed off to Wellesley College in the fall, we asked her to tell us about her experiences here.

How would you describe your experience here to a friend who was on the fence about joining a teen program or volunteering with us?

I would say that volunteering at the Adler has been one of my favorite experiences. I get to code, develop programs, and teach visitors from all over the world about science! Coming to the Adler and working is something that I look forward to every time.
In July, the Adler Space Experience took to the streets of Chicago, bringing our mind-blowing Space is Freaking Awesome facts to life from the Adler’s award-winning campaign. Housed within a lime green ice cream truck, the Adler Space Experience team popped up in multiple Chicagoland hotspots, including the Morton Arboretum, the John Hancock Center, Navy Pier, and Six Flags Great America to showcase just how freaking awesome space is.

In addition to tasting astronaut ice cream, visitors experienced mind-blowing facts about our Universe first hand. They attempted to dunk on a basketball hoop that was 20 feet tall—an easy task when you’re on the Moon where there is very little gravity; but as our visitors discovered, this proved more difficult here on Earth. They also tried lifting everyday objects, such as work boots, a cell phone, and a gallon of milk as they would weigh on Jupiter. Visitors had to guess what type of food the chemical make-up of the center of the galaxy smelled like, and many were surprised to learn that one of the chemicals, Ethyl Formate, smells like raspberries.

Adler astronomers were also on-hand at our “Ask an Astronomer” booth to answer all of our visitor cosmic queries. Questions varied from how much a person would weigh on Mars to what exactly is a shooting star.

The Adler Space Experience brought hands-on, minds-on science activities to 36,000 Chicagoans, gave them a taste of what the Adler has to offer, and encouraged them to explore more with us here at the museum.

Did you know on the Moon you can dunk on a basketball hoop six times higher than on Earth (that is, if you can dunk!)? Or that objects on Jupiter weigh 2.5 times what they do on Earth? How about knowing what the center of our galaxy smells like? Would your first guess be raspberries?
The Adler Planetarium gratefully acknowledges The Kavli Foundation—which is dedicated to the goals of advancing science for the benefit of humanity and promoting increased public understanding and support for scientists and their work—for its generous support of The Kavli Fulldome Lecture Series.

Dr. Mavalvala is a member of the Advanced Laser Interferometer Gravitational-Wave Observatory (LIGO) team that first detected these ripples in the fabric of spacetime in September 2015.

The afternoon and evening lectures drew a crowd to the Grainger Sky Theater and were live-streamed to audiences at partner institutions in 19 cities around the world. For the first time ever, the Adler also offered a VR-cast of the lecture. Anyone with a strong WiFi signal and a smartphone could view the lecture and its stunning visuals live in 360 degrees.

The Adler hosted two Kavli Fulldome Lectures (plus an encore presentation) in 2016. In May, University of Chicago Professor Michael Turner showed audiences at the Adler (and twelve other institutions across the continent via live domecast) how the big questions of astronomy have evolved over the centuries in, From The Big Bang To The Multiverse & Beyond.

The lecture proved so popular that Turner returned to the Adler for an encore presentation in July, when eight additional institutions from the United States, Canada, Ghana, Columbia, and Norway joined the Adler for the simulcast.

On October 28, MIT Professor Dr. Nergis Mavalvala gave the third Kavli Fulldome Lecture, The Warped Universe: The 100-Year Quest to Detect Gravitational Waves.

ASTRONOMY RESEARCH HAS NEVER LOOKED SO GOOD

The Kavli Fulldome Lecture Series takes audiences on a journey to the very edges of human knowledge. Adler experts and leading scientists work together to create dazzling, animated images of real data, which are projected onto the planetarium dome. Audiences don’t have to imagine what an equation might tell us about the Universe’s distant past—they can travel back in time virtually and see it with their own eyes.

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Zooniverse, the citizen science platform founded by the Adler and the UK’s Oxford University in 2007, launched three new projects in 2016:

**Snapshot Wisconsin** is a wildlife-monitoring program that studies photos from heat- and motion-activated cameras all across the state. Once the Zooniverse community has classified the animals in the photos, researchers can use them to understand patterns of animal occurrence for many different species. This project is a partnership with the Department of Natural Resources and the University of Wisconsin at Madison.

**Notes from Nature** is a digitization project in which citizen scientists transcribe labels of specimens from the world’s natural history museums. These biological collections document where species and populations exist now and where they existed decades and centuries before, so they hold important clues to the patterns of changes in species distributions and ecosystem composition over time. Scientists use such data and information in order to address key environmental issues we are facing right now, such as the impacts of climate change and how diseases affect wildlife and humans.

**Gravity Spy** is a new collaborative effort between the LIGO Scientific Collaboration and Zooniverse to improve LIGO’s ability to identify gravitational waves, a new window into our Universe. Citizen scientists classify signals from the LIGO data by looking for known patterns as well as new patterns in the data. The science team is using this information to teach computers how to better recognize patterns, which allows them to more accurately and efficiently identify gravitational wave signals.

The Adler Planetarium is grateful to the Alfred P. Sloan Foundation for its support of Zooniverse.

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**Zooniverse Stats**

- **43 PROJECTS** launched since 2007
- **1.5 MILLION** registered users
- **100 THOUSAND** classifications per day
- **103 MILLION** classifications (and counting)
to date
- **MORE THAN 6.5 MILLION** images, videos, and documents classified
- **2 THOUSAND** projects created on Project Builder since July 2015

2016 also saw the return of the **Milky Way Project**! Citizen scientists were called upon once again to help achieve an ambitious goal: review 76,000 new images and make 2 million classifications in six months.
Supported by a generous gift from the Michael W. Louis Charitable Trust, volunteers and Adler staff continued to digitize the museum’s historic photography collection in 2016, bringing unprecedented access to the museum’s collections to anyone with an internet connection. As that project wraps in late 2016, the collections team begins work on archiving the Webster Institute’s analog audio and video collection, the archival arrangement and description of the collection through archives database records, embedding of metadata, and ingestion of the digitized A/V files into a trusted digital repository.

Remmet Teunisse Backer
“Sterre Kaert of Hemels Playn.”
A beautiful hand-colored engraving from the Netherlands made in 1792.
In 2016, NASA awarded a grant to the American Museum of Natural History and partner institutions including the Adler to develop open-source space-visualization software that can follow NASA missions into the Universe and broadcast the journey in planetarium domes all over the world.

The five-year project, called Open Space, is already underway. Over the summer, the Adler’s Space Visualization Group (and its two teen interns) learned how to use the software to create presentations for use in the museum.
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The Adler Planetarium gratefully acknowledges the following donors who made in-kind contributions between January 1 and December 31, 2016.

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IN OUR UNIVERSE, EVERY MIND MATTERS.
Our mind-blowing Universe can spark the courage to ask an impossible question. Challenge conventional wisdom. Uncover a mystery that you can help solve. Build something, take it apart, examine it from every angle, and build it again—a little better than before.

We all have the potential to discover something great. At the Adler Planetarium, we help unlock that potential in every mind, and your support can help make that happen.

THANK YOU!