



ARCS ADVANCING
SCIENCE
IN AMERICA®

SAN DIEGO CHAPTER

ANNUAL REPORT 2020 - 2021

ACHIEVEMENT REWARDS for COLLEGE SCIENTISTS MISSION

ARCS Foundation advances science and technology in the United States by providing financial awards to academically outstanding U.S. citizens studying to complete degrees in science, engineering and medical research.

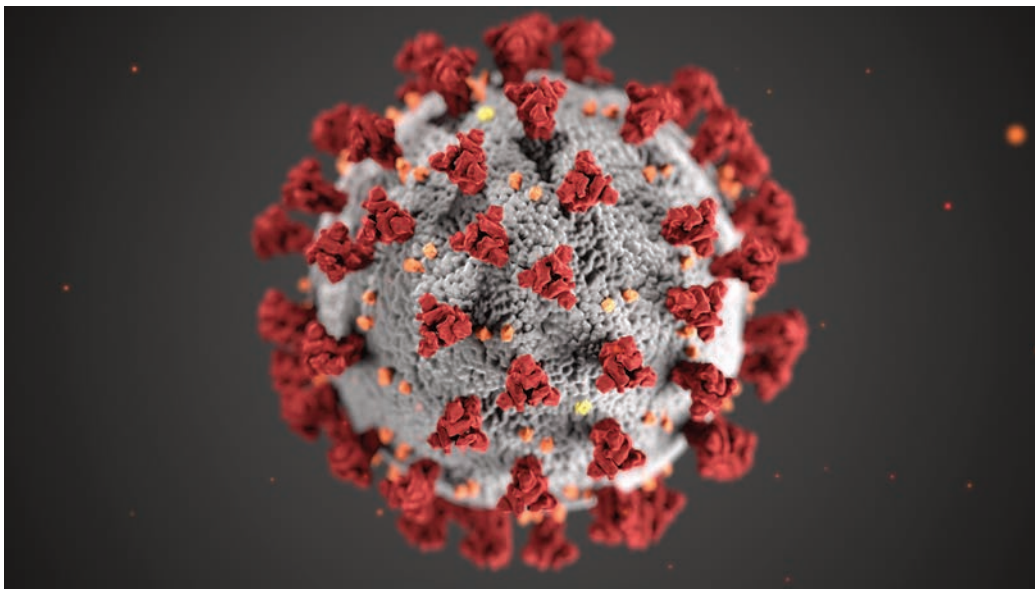


IMAGE BY: Alissa Eckert and Dan Higgins, illustrators with the Centers for Disease Control and Prevention, were asked to create a “beauty shot” of the coronavirus, to bring it to the public’s attention. Little did they know that it would become the iconic image for the COVID-19 pandemic that shocked our world this past year.

MESSAGE FROM THE PRESIDENT

The image on the opposite page says it all: this was indeed the year of COVID! We started our year in full lockdown mode. It was an unprecedented time and we had to rethink our usual ways of interacting with Scholars and members and conducting our business. And pivot we did! As I reflect back on this tumultuous year and consider all that we have accomplished, I am filled with both gratitude and pride. Not only did we survive, we thrived!

In 2020-2021, we were able to raise our Scholar award amount from \$7,500 to \$10,000 per Scholar at three of our academic institutions and awarded a total of \$420,000 to 46 Scholars.

We also broke all previous records for fundraising in both our Member Giving Campaign and our Scientist of the Year (SOY) Events. Thanks to the very generous support of members, Scholars, Scholar alumni, corporations, and friends, we raised almost \$109,000 in Member Giving and over \$112,000 in 2020 and \$120,000 in 2021, at our SOY Events. These numbers are phenomenal in any year, but extraordinary in the year of COVID! Thank you so much to everyone involved in these efforts! Investing in the next generation of scientists, engineers and medical researchers is crucial and will provide ongoing benefits to society as these young scientists become tomorrow's leaders.

With the help of new technology such as Zoom, and thanks to lots of flexibility on the part of our members, we learned to operate completely in the virtual world, for meetings, field trips and fundraisers alike. And we quickly discovered a silver lining in the process! We could invite anyone and everyone to "attend" these virtual events,

whether members from other ARCS chapters or Scholar alumni scattered across the globe. Here's where our efforts to update the contact information of our Scholar alumni – all 633 of them – paid off in spades! We could also invite our Scholars and Scholar alumni to lead us on virtual field trips from anywhere in the world and share the experience with all of our constituents, both in real time and in perpetuity through the video recordings posted on our website.

The same holds true for our SOY Events, which took the form of a 1 ¼ hour YouTube Premiere, allowing us to feature short vignettes provided by our Scholars and Scholar Alumni alongside the keynote address from our Scientist of the Year. These inspiring messages still resonate today and can be easily accessed on our website. Who would have guessed that a year of lockdowns and social distancing would actually lead to increased visibility for our chapter?!

Finally, we blazed new trails this year through social media (Twitter, Facebook, and LinkedIn) and began connecting with ARCS Scholars, Scholar alumni, members, and friends, which enabled us to share news as well as receive news about the ARCS community and beyond. A few of our outstanding Scholars and Scholar alumni are highlighted in this Annual Report.

I hope you find it enjoyable and informative reading and thank you for your continued support!



HOLLY HEATON,
President 2020-2021



WHO WE ARE: THE HISTORY of ARCS

October 4, 1957 was a game-changer. On that date, Russia launched Sputnik, a 183-pound satellite, roughly the size of a beach ball, into space. This surprise launch shocked the United States and forced it to rethink its place as the technological leader of the world. It also ushered in the Space Age and the Cold War. The Russian action touched all areas of America, including politics, patriotism, science, the military, and education. In response, the US undertook an unprecedented push to educate Americans in science and math.

As part of that initiative, a group of women in Los Angeles saw the opportunity to make a difference by creating a partnership between science and society. Their goal was to re-establish and re-energize the technological superiority of the United States. They started the first ARCS chapter in September 1958. ARCS (Achievement Rewards for College Scientists) is a nationally recognized nonprofit organization founded and administered by women who volunteer their time and talent to support American advancement in STEM (science, technology, engineering and math) and in biomedical research. It is now comprised of 15 chapters across the nation.

In 1985, four San Diego women established ARCS Foundation San Diego: Karen Bowden, Karon Luce, Barbara McColl, and Pattie Wellborn. Thirty-six years later, ARCS San Diego has provided over \$11 million in financial awards to the brightest STEM scholars at four local academic institutions. By investing in these scholars, we are securing a better future for America and the world.

FACTS AT A GLANCE

113 CURRENT MEMBERS

1985 CHAPTER STARTED WITH 4 FOUNDERS

\$11,347,000 FUNDED SINCE 1985

46 SCHOLARS AWARDED **\$420,000** IN 2020-2021

98% GRADUATION RATE

OUR SCHOLARS ... TOMORROW'S LEADERS

2020-2021 ARCS SAN DIEGO CHAPTER SCHOLARS



We are so proud of our Scholars. We continue to be amazed by their hard work, dedication, and resilience, even during this “year of COVID;” a year of lockdowns, mask wearing, and social distancing, to name only a few of the hardships. We are also grateful for our academic partners - UC San Diego, San Diego State University, Scripps Research and the University of San Diego – who choose our Scholars and who are approved by the ARCS National Board on the basis of excellence in basic science, engineering, math and medical research.

Our Scholars are all PhD candidates and are conducting research and making new discoveries that will lead to advances in global health and wellness, understanding and treatment of disease, national security, ecological improvements, space exploration and many other STEM areas.

We are proud to volunteer our time to promote scientific advancement in our country and provide unrestricted funds to tomorrow’s leaders. 100% of our contributions go directly to our Scholars, not to administration or infrastructure. ARCS is one of the largest contributors to basic science education of any private membership organization in the United States.

SCHOLAR SELECTION

Scholars must be U.S. citizens and meet ARCS-established academic criteria with a minimum 3.5 GPA, while pursuing undergraduate and graduate degrees in a wide range of scientific subjects. These Scholars are specializing in astronomy, biochemistry, botany, cell and molecular biology, chemistry, computer science, ecology, engineering, genetics, marine biology, mathematics, medical research, oceanography, physics and more.



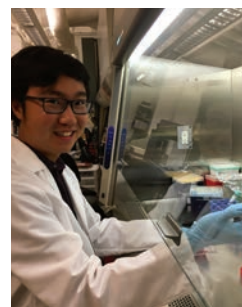
**MARIEL MANALOTO
CARDENAS**

SDSU/UC SAN DIEGO

College of Sciences

Concentration: Chemistry

Specialization: Asymmetric
Catalysis in Medicinal Chemistry,
Organic Chemistry



LEONARD HEEKYU YOON

SCRIPPS RESEARCH

Skaggs Graduate School of
Chemical and Biological Sciences

Concentration: Chemical Biology

Specialization: Molecular
Medicine



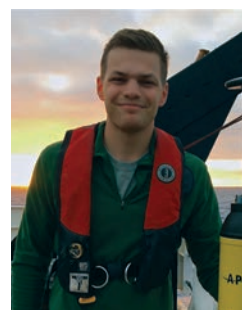
ANN OZAZE LAWANI

USD

Hahn School of Nursing and
Health Sciences

Concentration: Nursing

Specialization: Cardiopulmonary
Nursing and Palliative Care



CHANNING JOSEPH PREND

UCSD

Scripps Institution for
Oceanography

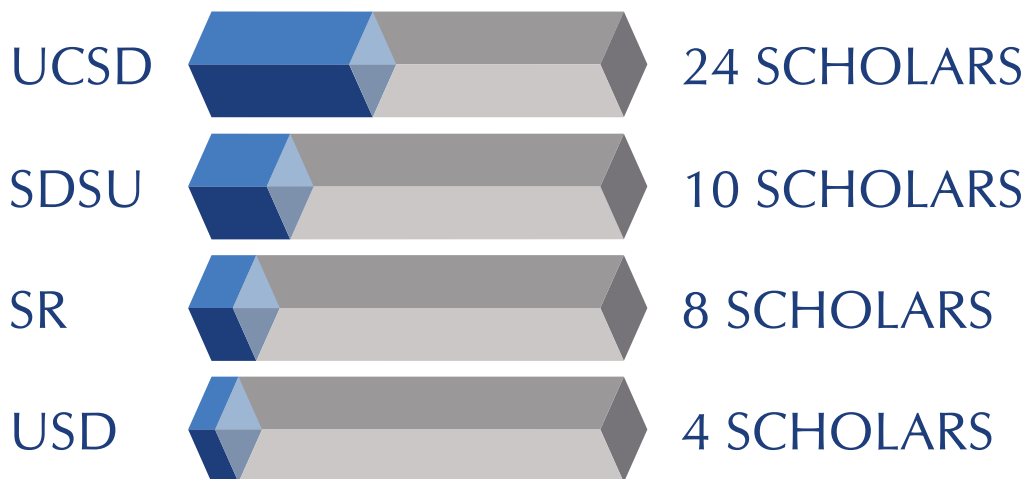
Concentration: Physical
Oceanography

Specialization: Air-sea Interaction

ALLOCATION of ARCS SCHOLAR AWARDS

The amount of funding available for ARCS Scholar Awards is calculated each year by using a distribution formula based on the percentage of eligible Scholars enrolled at each ARCS-approved recipient university.

The **2020-2021 academic year awards** were allocated as follows:



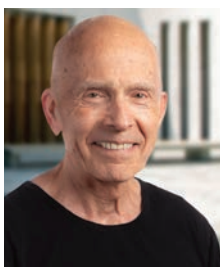
ARCS SAN DIEGO CUMULATIVE FUNDING 1985-2021

TOTAL AWARDS GRANTED 1,534 | TOTAL FUNDING \$11,347,000



2020 SCIENTIST of THE YEAR VIRTUAL EVENT

Twice postponed due to the coronavirus pandemic, the 2020 Scientist of the Year (SOY) Event finally took place on September 20, 2020, in the virtual form of a YouTube Premiere. It was well worth the wait! We were treated to 1 ¼ hours of inspiring and uplifting messages from our SOY, Scholars, and Scholar alumni, all in support of STEM and biomedical research, the ARCS mission. What a perfect finish to the 35th Anniversary of our chapter, and we raised a record \$112,000 for the Scholar Award Fund in the process.



PAUL SCHIMMEL, PHD – 2020 SCIENTIST OF THE YEAR | Dr.

Schimmel is a biophysical chemist and translational medicine pioneer and professor of molecular biology at Scripps Research. His research interests have focused on aminoacyl tRNA synthetases as fundamental interpreters of genetic information. His lab also discovered what others have referred to as a primordial, or “second” genetic code that was incorporated into the modern code. Dr. Schimmel and his wife Cleo have been long-time, generous supporters of women in STEM at MIT, Ohio

Wesleyan and Scripps Research.



JEFFREY T. ROBERTS, PHD – ARCS SCHOLAR ALUMNI SPEAKER | Dr.

Roberts earned a BS in Chemistry at the University of California, Berkeley and went on to earn a PhD in Chemistry from Harvard University. He is currently Dean of the College of Sciences and Professor of Chemistry at San Diego State University.



JESSICA MEIR, PHD – ARCS SCHOLAR ALUMNI SPEAKER | Dr.

Meir is an astronaut, marine biologist and physiologist, who received a Master’s degree from the International Space University of Strasbourg, France and a PhD degree from Scripps Institution of Oceanography. In 2013, Dr. Meir was selected as a member of Astronaut Group 21 at NASA. In 2019, she became part of the first all-women team to walk in space when she spent 7 months on the International Space Station. She was awarded the 2020 ARCS Scholar Alumna Hall of Fame award in February,

while on the Space Station, and returned to Earth in April 2020.

TITLE SPONSORS



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Scripps
Research

2021 SCIENTIST of THE YEAR VIRTUAL EVENT

Our second virtual gala went off without a hitch on April 25, 2021. Once again, we were blown away by the talent and dedication to science that was on full display among our Scientist of the Year, Scholars, and Scholar alumni. We were also incredibly grateful to our members and sponsors who helped us raise over \$120,000 for this event!



ERICA OLLMANN SAPHIRE, PHD – 2021 SCIENTIST OF THE YEAR |

Dr. Saphire is a professor in La Jolla Institute for Immunology's Center for Infectious Disease and Vaccine Research and the Director of the Coronavirus Immunotherapy Consortium (CoVIC), which united academics, non-profits, small and large biotechs, and major corporations from around the globe to address the urgent need of identifying the most efficacious antibody therapeutics to prevent and treat COVID-19.

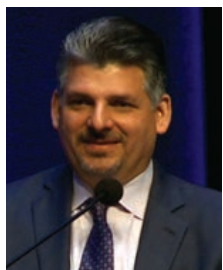
Throughout her career, Dr. Saphire had her sights firmly trained on the global threat of highly infectious diseases. In her own lab, Dr. Saphire studies the three-dimensional structures that drive immune recognition and protection. Her research reveals where viruses are vulnerable, how a successful immune response can be mounted, and draws the blueprints for better vaccines and treatments.



MINA NIKANJAM, MD, PHD - ARCS SCHOLAR ALUMNI SPEAKER |

Dr. Nikanjam is a medical oncologist and physician-scientist currently working at Genentech. She is responsible for designing and running clinical trials for novel combination therapies to improve treatment options for patients with metastatic breast cancer. Dr. Nikanjam completed a fellowship in hematology-oncology at UCLA School of Medicine and a residency in internal medicine at Kaiser Permanente Santa Clara. She earned her medical degree from UC San Diego School of Medicine and

her doctoral degree from UC Berkeley.



CHRISTOPHER VOLPE, PHD – ARCS SCHOLAR ALUMNI SPEAKER |

Dr. Volpe earned a PhD in oceanography at Scripps Institution of Oceanography. His strong interest in developing new approaches to public science engagement led him down an entrepreneurial path. He is currently the executive director of ScienceCounts, a Washington-based non-profit organization working to enhance public awareness of, and support for, investment in science.

GOLD SPONSORS



GILEAD UC San Diego

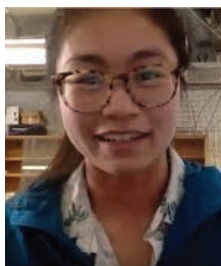
BENEFITS of ARCS MEMBERSHIP

ARCS members have the opportunity to actively engage with Scholars and academic partners at presentations, lab and site visits, and social events. Members also enjoy learning about cutting-edge technologies and establishing relationships with Scholars. In 2020-2021, due to the pandemic, all of these activities “went virtual.” Although we missed the in-person connection with our speakers and Scholars, it enabled us to visit places beyond the borders of San Diego and to invite Scholars, Scholar alum, and ARCS members to join us from across the country.



SAN DIEGO ZOO GLOBAL |

Zoom presentation by Drs. Patricia Gaffney, Steven Kubiski, and Caroline Moore (Disease Investigations Group at Institute for Conservation Research and all former ARCS Scholars) about their efforts to remove disease as a roadblock to wildlife conservation.



SCRIPPS INSTITUTION OF OCEANOGRAPHY |

Zoom presentation by Jessica Ng, 2020-2021 ARCS Scholar at UC San Diego, about reconstructing groundwater levels in the Andean Highlands of Chile and Argentina, where lithium mining for electric vehicle batteries is threatening limited water resources and indigenous communities, and eastern Oregon, where local communities and tribes are seeking sustainable water use in the face of industrial agriculture.



SHARP HIP PRESERVATION CENTER |

Zoom presentation by Dr. Richard Santore, an esteemed orthopedic surgeon affiliated with Sharp Memorial Hospital in San Diego, about the often misunderstood and misdiagnosed condition of hypermobility.



NASA's JET PROPULSION LABORATORY |

Zoom presentation by Dr. Curtis Padgett, Supervisor for the Perception Systems Group at NASA's Jet Propulsion Laboratory (JPL), and 1992 ARCS Scholar at UC San Diego, on recent research in the Perception Area of the Robotics Section at JPL, including technology development for aerial, sea surface, and future sensing applications.

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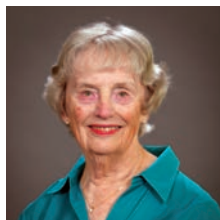
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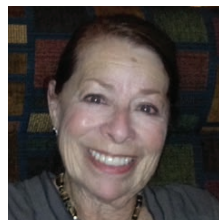
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2021 – 2022

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IN-KIND

La Jolla Institute for Immunology
Ilus Art

The amounts above indicate donations to the ARCS Foundation Scholar Awards Fund, Endowment Fund and Memorial Funds.

See an error or omission? Please send an email to: sandiego@arcsfoundation.org

OUR ALUMNI—CHANGING THE WORLD!

Thousands of ARCS Scholar alumni go on to make outstanding contributions to advance science and keep America competitive. Here are just a few standouts in 2020-2021 from our chapter.



CHELSEA ROCHMAN, PHD (2012-2014 ARCS SCHOLAR, SDSU)

Plastic pollution is one of today's most pressing ecological problems and Dr. Rochman is regarded as a pioneer and global leader in its study: where it comes from, what damage it is doing and how we can mitigate its effects. For this work, she received a 2021 President's Impact Award — given by the University of Toronto to faculty members whose research has had significant impact beyond academia — as well as the Carolyn Tuohy Impact on Public Policy Award in March 2021.



MARIAH MEEK, PHD (2005-2006 ARCS SCHOLAR, SDSU)

Dr. Meek received a prestigious 2020 Early Career Conservationist Award from the Society for Conservation Biology last May for her outstanding contributions to the conservation of marine and freshwater ecosystems using genomic data.



HELEN KEMP (2000-2002 ARCS SCHOLAR, SDSU)

Dr. Kemp is currently Section Head of Research & Development at Procter & Gamble. She is also a member of the 2020-2021 WE Lead Class 15, which includes leaders from a diverse group of industries and backgrounds, comprised of 36 women representing 32 organizations. In its 14-year history, more than 700 women have graduated from WE Lead, which is a 10-month executive leadership development experience for high-potential, goal-oriented women, who are actively preparing for the next level of their careers.

INVESTING IN AMERICA'S FUTURE



Join us to support ARCS Scholars and invest in the future of science, technology, research and innovation in America. The Scholar Award Fund is supported by ARCS members, foundations, academic institutions, businesses, and individuals in the community.

Give online at san-diego.arcsfoundation.org

Donations by check may be mailed to:

ARCS Foundation, Inc. – San Diego Chapter

Attn: Christine Diaz, 207 West D Street, Encinitas, CA 92024

All gifts are tax-deductible and greatly appreciated by our members, the Scholars and their academic institutions.

100% OF EVERY DONATION GOES TOWARDS SCHOLAR AWARDS

To make a donation of stock, create an endowment, include ARCS in your Estate plans, or request additional information, please contact:

Holly Heaton, President | hheaton02@gmail.com

Rachel Collins, VP Fund Development | rachelcollins452@gmail.com

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