

ARCS FOUNDATION ORANGE COUNTY CHAPTER

Newsletter - June 2016

pH Reading from the President

Dear ARCS Foundation - Orange County Chapter members and friends,

June brings us into the summer season. Between vacations and time to spend with family and friends, the ARCS OC Chapter is gearing up to plan for an exciting year. At our June 22, ARCS OC Chapter General meeting and potluck we installed the 2016-17 officers to the Board of Directors. Early in the fall the Schools of Biological Sciences, Engineering, Information and Computer Sciences, Medicine and Physical Sciences will select our 2016-17 ARCS OC Chapter Scholars. Each school holds its own competition and makes the final selection of its scholars. Go to the [UCI Graduate Division](#) web page for a listing of the criteria for scholar selection, and information on our current scholars.



In this newsletter our featured scholars are Elyse Van Spyk and Caitlin Regan. Elyse is currently in her 4th year of doctoral study in the School of Medicine's Department of Biological Chemistry and Caitlin is pursuing her PhD in Biomedical Engineering. Support from ARCS OC Chapter has enabled these future leaders in science and engineering to travel to conferences and present their research, networking with colleagues from around the world.

Mark your calendar for Monday, November 7 for ARCS OC Chapter's annual Beckman Family Science Lecture and Dinner at the UCI University Club. Our speaker, Dr. Howard Federoff, Vice Chancellor for Health Affairs and CEO of the UCI Health System, will be talking about "Predicting Who Will Get Alzheimers". Keep an eye out for an invitation which will be coming soon.

We always look forward to welcoming new members to the ARCS Orange County Chapter and invite you to pass this newsletter along to colleagues and friends. In close collaboration with the University of California, Irvine, the ARCS OC Chapter recognizes future leaders in science and engineering fields supporting promising scholars in the startup stage of their work and discovery. To learn more about ARCS Orange County Chapter, sponsor a scholar, donate, or become a member, please visit the [ARCS Orange County web page](#).

I wish you an enjoyable summer and look forward to seeing you in the fall at our annual Beckman Family Science Lecture.

Chandra Jain, President

ARCS Scholar Alums, We'd Like to Hear from You!

You are a vital part of our mission. Your stories encourage current scholars and help us attract new funding for future scholars. Stay involved with ARCS Foundation members and other scholars if you live in Orange County or want to give back in any way, including speaking about your research at an ARCS Foundation event. Let us know how you would like to participate in carrying ARCS Foundation work into the future.

To notify the Orange County Chapter that you are in the area, please email us at orangecounty@arcsfoundation.org.

Featured News & Events

Beckman Family Lecture and Dinner - Nov 7, 2017

2016 Dinner with a Scientist

2016-2017 Membership Renewal

2015-16 Photo Memories

Featured Scholars

Caitlin Regan - UCI School of Engineering

Elyse Van Spyk - UCI School of Medicine

LA Chapter Gala Press Release: "From Sputnik to Endeavor"

Remembrance

James Emmi

René Leonardo Rojas



2016 Beckman Family Lecture and Dinner - Mark your Calendar

November 7, 2016 at the University Club on the UCI campus

Dr. Howard Federoff, Vice Chancellor, Health Affairs and CEO of the UCI Health System will be talking about "Predicting Who Will Get Alzheimers". Watch for the invitation. ARCS members and friends are invited to attend.

and the good ones. As we now better understand the beneficial role of commensal microbes for our general wellbeing, there is also a need to develop new treatments for infections that do not affect the good microbes that inhabit our body.

A new strategy that Dr. Raffatellu and her research group are working on is to block metal ion acquisition by pathogens without interfering with the microbiota because pathogens, like humans, need metal nutrients such as iron, zinc, and manganese to grow. More information about Professor Raffatellu's research can be found on the web at the ["The Manuela Raffatellu Lab"](#).

ARCS OC Chapter Membership and Renewal

The ARCS Foundation Orange County members - renew your membership for 2016-17.

Know that through your membership, YOU are making a significant contribution to advancing science and technology. The need has never been greater as America faces ever increasing challenges from abroad and declining funding within. We ask for your continued support. Membership dues are due July 1. Check your email for the membership renewal form or download the Membership Renewal Form from the web site by clicking the button below.

New members: We always look forward to welcoming new members to the ARCS Orange County Chapter and invite you to consider becoming a member and supporting future STEM leaders through ARCS scholar support. 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.

Since 1999, the ARCS Orange County Chapter has provided 232 scholar awards at UCI totaling over \$2,000,000.

To learn more about ARCS Foundation Orange County Chapter and become a member, please visit our [ARCS Foundation Orange County web page](#).

ARCS OC Chapter - 2015-16



structures that aren't moving, such as the skin, the skull, and the teeth. Traditionally, the signal from these non-moving structures obscures the information about flow that researchers are interested in, and makes it difficult to get a clear image of blood vessels buried below them. Caitlin works on a mixture of experimental and computational techniques in order to try and improve this technology, as well as applying it to patients in the clinic to help monitor oral health.

One way she has been able to get clearer images of blood vessels under the skin is by shining a quick pulse of yellow laser light onto the sample. The blood absorbs the energy from this light, which causes it to get warmer and expand. This change in motion creates a stronger signal in the blood vessels as compared to the surrounding tissue, making it easier to resolve them in an image. She was able to travel to Sweden last summer to present this research and get feedback from colleagues around the world thanks to the generous contribution from the Roche/ARCS Foundation.

Another project Caitlin has been working on for the last year is to use computer simulations to understand how light travels through different tissues. Using this model, she can predict the speckle contrast values for many different samples with different geometries and optical properties. She is using this model to help understand how deep within the skin we are measuring blood flow, and how different wavelengths of light may provide different information about the localization of the blood flow.

The last project Caitlin works on is a clinical study to apply laser speckle imaging towards measuring blood flow in the mouth. In particular, the study is to test a device to measure blood flow in the teeth in order to help inform a clinician whether or not a damaged tooth is viable, and if the patient needs a root canal.

When Caitlin is not in the lab, she spends her time playing water polo with the UCI club team and the Riptide Women's Masters team, and enjoys other outdoor activities including running, hiking, biking and playing tennis.

Featured ARCS OC Chapter Scholar - Elyse Van Spyk, School of Medicine



Ph.D. Candidate Elyse Van Spyk is a second year Roche/ARCS Scholar in UC Irvine's School of Medicine. Elyse earned her Bachelor of Science degree in Neurobiology, Physiology and Behavior at UC Davis in 2012. She is currently in her 4th year of doctoral study in the Department of Biological Chemistry at UC Irvine, and she is advised by Dr. Bogi Andersen. In 2014, she was awarded a National Science Foundation Graduate Research Fellowship (NSF GRPF). Elyse used her Roche/ARCS funding to gain extensive training in technical aspects of her work by attending a training course for flow cytometry at the NIH headquarters in Bethesda, Maryland in 2014. Elyse shares her research with broad audiences and has given talks at the UC Irvine's Biological Chemistry departmental seminar series as well as at the UC Irvine's Medical Center Skin Disease Oriented Team's (DOT) meeting.

In 2015, Elyse used Roche/ARCS funding to travel to Sunday River, Maine, and present her work at the Gordon Research Seminar on Epithelial Differentiation & Keratinization in a talk entitled "Time-restricted feeding shifts the skin circadian clock and alters UVB-induced DNA damage". With Roche/ARCS support, she just presented a poster on this topic at the Society for Investigative Dermatology 75th Annual Meeting in Scottsdale, Arizona on May 12, 2016. This year, Elyse has published a second author review article in the *Journal of Biological Rhythms* entitled, "The Circadian Clock in Skin: Implications for Adult Stem Cells, Tissue Regeneration, Cancer, Aging, and Immunity". She has also written an invited book chapter for a Springer books series entitled, *Regulation of Cutaneous Stress Response Pathways by the Circadian Clock: From Molecular Pathways to Therapeutic Opportunities*, which will be published shortly.

Elyse's research explores the unexpected relationship between the circadian rhythm and skin biological function. She is currently investigating how the immune response in the skin may be altered by the timing of food intake. Her findings suggest that abnormally timed food intake may be detrimental to skin health, and may contribute to skin pathologies including premature ageing and cancer as well as the development of autoimmune diseases. Understanding how the circadian clock and meal timing affect skin biology is of critical importance for the development of time-of-day specific medical therapeutics.

Elyse is featured on the [UCI Skin Club website](#): "...a new Ph.D. Candidate! Elyse began at UCI in 2012 as a Cellular and Molecular Biosciences Ph.D. student and joined Dr. Bogi Andersen's laboratory to conduct her research. Since she began in the lab, she has received multiple awards to support her research endeavors. In 2014, she received the National Science Foundation Graduate Research Fellowship Program (NSF GRPF) fellowship in support of her research. And in 2015 she was awarded a prestigious Roche ARCS Foundation Scholar Award."

Elyse finds joy mentoring high school and undergraduate students. She focuses on teaching them not only relevant scientific techniques, but also how to communicate about their work and teach others. In her free time, Elyse practices painting and drawing. She believes that training in studio art has helped her develop communication skills necessary to disseminate her scientific findings to broad audiences. Elyse also enjoys hiking, traveling, and attending conferences.

Elyse would like to thank Roche and the ARCS foundation for providing her with funds to obtain equipment and attend trainings and conferences relevant to her work.

Remembrance

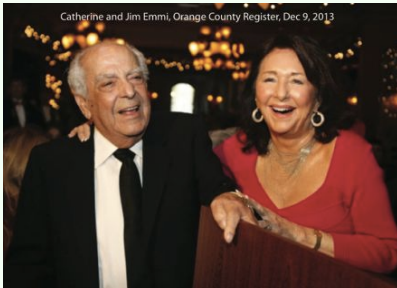
With sadness we share news from two ARCS OC Chapter members, whose husbands passed away this year.

Jackie Rojas, ARCS Orange County member; Jackie's husband René Leonardo Rojas passed away on April 12th, 2016. He will be forever in our hearts and our minds. He touched so many people through his younger days in school and university in Chile, as well as his work instructing scuba, his days at ScubaPro, his many years as a commercial fisherman for sea urchin, and last but certainly not least his life-long love of free diving and spearfishing which took him all over the world and into so many hearts. He was a very loving father and husband who braved the high seas and sacrificed his body to provide for his family, was a selfless mentor to so many in the dive community, competed at the national and world levels in spearfishing, and was one of the most giving, kind, positive, and humble people many of us will ever know.



Source: [Spearfishing Diving Boating Social Media Forum](#)

Catherine Emmi, ARCS OC Chapter member; Catherine's husband, James Emmi, died peacefully of natural causes at his home in Corona del Mar on May 14. He was 99. The Emmis' extensive philanthropic involvement has included education, healthcare, the arts and science. A partial list of organizations includes UC Berkeley College of Engineering, Caltech, Oregon Tech, New Jersey Institute of Technology, Purdue University, MIND Research Institute, Mission San Juan Capistrano, Hoag Hospital, Opera Pacific, American Symphony Orchestra League, Segerstrom Center for the Arts, Girls Inc., Newport Beach Performing Arts Theatre Foundation, Newport Beach Public Library and the Orange County Museum of Art. Jim would have turned 100 on June 23.



Source: [LA Times- June 23, 2016](#)

ARCS Orange County Chapter Board of Directors 2015-2016

- President - Chandra Jain
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- Immediate Past President - Ellen Lewis
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