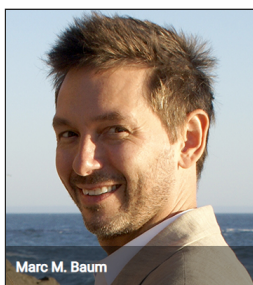




tackling today's world of environmental and medical challenges

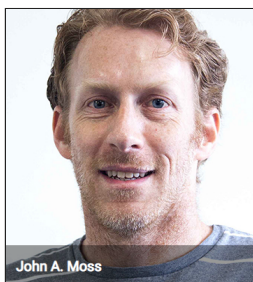
Oak Crest Institute of Science 20th Anniversary Party



Marc M. Baum

On August 24th, there was a major party at the Oak Crest Institute of Science in Monrovia to celebrate its 20-year anniversary, a major achievement. "I am so proud of where we are today especially in light of the arduous road it has taken to get here," said Oak Crest founder Dr. Marc Baum. The Institute has come a long way from a small warehouse space in Baldwin Park that was inhabited by Dr. Baum and a part-time student, Oak Crest's first of many. Dr. John

Moss joined the Institute in Jan. 2001, the day it relocated to an even smaller space in Pasadena! Dr. Moss said, "Coming to Oak Crest from Caltech and walking into an essentially bare space was both exciting and daunting. Little did I know then that those early days were the start of a nearly 20-year journey to develop the Institute that we have today." Drs. Moss and Baum soon began to shape the vision of Oak Crest culminating with the now infamous brainstorming session at a local coffee shop. "It was as if a switch had been flicked on and we both knew that we had found our niche: conducting cutting edge, scientific research in areas of social relevance while providing low barrier opportunities to underrepresented young, aspiring scientists, with an initial focus on community college students," said Baum. The emerging



John A. Moss

vision for Oak Crest was based on the notion that a small, intimate research institute could be highly complementary to established large institutions of higher learning in conducting rigorous, productive, relevant science research while broadening the participation of underrepresented groups (by race, ethnicity, gender, and socio-economic standing) in science. In Spring 2003, Wendy Cano joined the team as a part-time bookkeeper and now is the Institute's administrative leader, "I consider Oak Crest my home and take great pride in

News & Events

YES Intern Final Presentation

Over the summer four YES Interns, high school students in real life, rose to the occasion by learning complex scientific techniques, and then teaching these techniques to groups of 8th to 10th grade students who attended the Oak Crest Junior Summer Research Academy.

On Thursday August 9th, our four YES Interns gave up one of their last free summer afternoons to dress up and join their YES Program colleagues for the final presentation of their summer internships.

The knowledge and confidence the students acquired over the summer, and their wonderful personalities, was on display in the City of Monrovia Council Chambers that afternoon. Descriptions of spectroscopy, protein electrophoresis, and immunocytochemistry astounded the audience, and their final video clip was pure entertainment.

We would also like to acknowledge, and thank Brooke Putich and Jamie Bumia from the City of Monrovia. We all would have been lost without their excellent organization and mentoring skills.

We are very proud of the wonderful young people who were the Oak Crest YES Interns this year, and thank the City of Monrovia for continuing to support this important program.

seeing her grow into such a substantial entity doing good in the world,” said Cano. “If 20 years has already elapsed then sign me up for 20 more!” she continued.

Over the coming years, Oak Crest developed a number of collaborations with prominent academics and industry partnerships and the Institute gradually grew in an organic fashion. “We have enjoyed some wonderful collaborations over the years, but our current group probably is the best yet. We not only enjoy working together, but we are also friends and really like hanging out together. We’re a very tight group,” he continued. Oak Crest moved to its current location in Spring 2016, a state-of-the-art 13,400 sq. ft. laboratory facility in Monrovia encompassing four buildings. “Having the opportunity to purchase and arrange our own facility from the ground up gives us sustainability,” said Baum. “We are stronger today in all regards than we have ever been and we’re here to stay!” Dr. Paul



Paul Webster

Webster, who joined the Oak Crest Faculty in 2014 remarked, “From the first day I walked through the doors of Oak Crest in Pasadena, and years before I joined as a Faculty member, I saw the potential for great things to happen. Working in a cramped, messy rented space, students were doing exceptional research and enjoying the process of learning. Moving to Monrovia and into the renovated space was an important part of the growth process” More recently, the buildings to the east and west –

affectionately referred to as Campus East and Campus West– have been added on. “This added space has allowed us to diversify, while staying true to our mission,” explained Baum. “Campus East houses our Imaging Core with our new electron microscopes and provides additional lab space for our outreach activities, while Campus West is primarily our new science incubator space, OCIS-i. Dr. Chris Buser, who runs the Imaging Core and OCIS-i commented, “We went from bare walls to two functional facilities in six months on a minimal budget. I have never seen anything like this, it would take a university department two years and literally ten times more money. Quick and inexpensive solutions and the know-how to crack complex problems is precisely what OCIS-i has to offer to start-ups.”



Chris Buser

Over the past 20 years, Oak Crest has served over four hundred researchers –high school, community college, undergraduate, and graduate students– and in 2018 started a program dedicated to engaging middle school students in science research. “It is very important to get students interested in scientific research at an early stage,” said Manjula Gunawardana, a Senior Scientist at Oak Crest who has mentored numerous past research fellows. He continued, “Oak Crest provides these young individuals to experience hands-on laboratory research, an opportunity to work together with scientists, and inspires them to become the next generation of scientists.” Oak Crest continues to prosper thanks to invaluable contributions by researchers, from volunteers through Senior Faculty, and through the generous funding support from government, foundations, industry, and private donors. “The energy that our young researchers bring to the Institute is second to none,” said Baum. “We are very fortunate to be able to couple this unique educational model with the laboratory research –the science– and remain productive. It’s amazing!” Here’s to another awesome 20 years!

Congratulations to Kathryn Manning, Logan DeBetta, Teylor Graves, and Valaria Marquez, and a big “thank you” from everyone at Oak Crest. You all did a great job learning and teaching, and we wish you well in your studies as you move into the new school year. Our hope is that you will remain in touch as you continue to grow.

The SEM



The most recent addition to the OCIS imaging core is a Hitachi S-4500II cold-field-emission scanning electron microscope (FE-SEM) with a resolution of 1.5 nm and elemental analysis capability (Oxford EDS). SEMs use a focused beam of electrons to scan the surface of a specimen and point-by-point detect the electrons that are released or reflected by the surface. In addition, electrons excited into a higher electron shell release element-specific X-rays when they fall back into their lower shell. These X-rays can be detected using the EDS system, allowing the SEM to record elemental distribution maps of the specimen.

The instrument is in the last stage of installation and will be used in our biomedical and environmental research projects. The SEM will allow us to identify the composition and origin of small particles collected on filters used to sample the air at different distances to a local freeway. An example of biomedical applications is the imaging and compositional analysis of bacterial biofilms. Other popular specimens for outreach are insects and man-made objects such as microchips.

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ANNOUNCEMENTS

Highlights for Next Month

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In October, Drs. Baum and Moss
will be attending the 2018 HIV
Research for Prevention
Conference in Madrid, Spain.

